ANNUAL REPORT IIBB 2019

INSTITUTE OF BIOMEDICAL RESEARCH OF BARCELONA

IibB

CSIC

Consejo Superior de Investigaciones Científicas

2020 Institut d'Investigacions Biomèdiques de Barcelona, CSIC
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Roser Cortés i Colomé
IIBB Director

DIRECTOR'S WELCOME

History

The Institute for Biomedical Research of Barcelona (IIBB) belongs to the CSIC and is associated to the "Institut d'Investigacions Biomèdiques August Pi i Sunyer" consortium (IDIBAPS). IDIBAPS belongs to the CERCA (Research Centers of Catalonia) and is one of the largest and most productive biomedical research institutes in Spain.

The IIBB was created by the CSIC's governing board on 28 February 1995 with three departments (Medical Bioanalysis, Pharmacology and Toxicology, and Neurochemistry) of the "Center for Research and Development" (CID) with the aim to join the IDIBAPS, together with the School of Medicine of the University of Barcelona, the Hospital Clínic of Barcelona and the Generalitat de Catalunya (Catalan Government). The staff of the institute remained at the CID until July 1999, when it moved to new premises at the Hospital Clinic (Rosselló 161, 6th and 7th floors).

Favored by a space shortage at the IIBB, the CSIC and the Autonomous University of Barcelona (UAB) signed an agreement for the creation of a common Laboratory of Proteomics CSIC/UAB. The IIBB Structural and Biological Mass Spectrometry and Proteomic Unit moved to the UAB the end of 2005.

In November 2016 the Cardiovascular Research Center (CIC), a CSIC institute located in Hospital de Sant Pau (HSP) in Barcelona, was suppressed. Three of the CIC researchers joined then the IIBB, while remaining in HSP premises.

In June 2018 the CSIC created an Associated Unit named "Tumorigenesis Mechanisms and Tumor Progression" at the IMIM (Institut Hospital del Mar d'Investigacions Biomèdiques) through the IIBB.

The departmental structure of the IIBB has been modified twice in order to adapt to successive strategic plans and at present is organized in four Departments: Cell Death and Proliferation, Cerebral Ischemia and Neurodegeneration, Experimental Pathology, and Neurochemistry and Neuropharmacology.

IIBB members belong to six different Biomedical Network Research Centers (CIBER: CIBERNED, CIBERSAM, CIBEREHD, CIBERESP, CIBERCV or CIBERBBN) and also teach postgraduate programs in the University of Barcelona, thus contributing to the training of highly specialized professionals.

IIBB former Directors

Emilio Gelpí Monteys	(1995 – 2009)
Cristina Suñol Esquirol	(2009 – 2014)
José Carlos Fernández-Checa	(2014 – 2018)

Our mission

IIBB is a basic biomedical research center whose mission is to advance the understanding and to promote translational research in the in the field of Health Sciences, in order to meet the demands of our society in diseases and therapeutic and surgical interventions of high incidence and social repercussion, such as neurological and psychiatric diseases, inflammatory processes and cell death.

Our Aims

The objectives of the IIBB within IDIBAPS are therefore oriented towards the development of its own research in the field of Medical Sciences with a scientific activity focused on

a. research and development that integrates basic researchers in close collaboration with clinical researchers
b. the contribution to solving health care problems and
c. enhance our training capabilities of the next biomedical scientists through postgraduate teaching.

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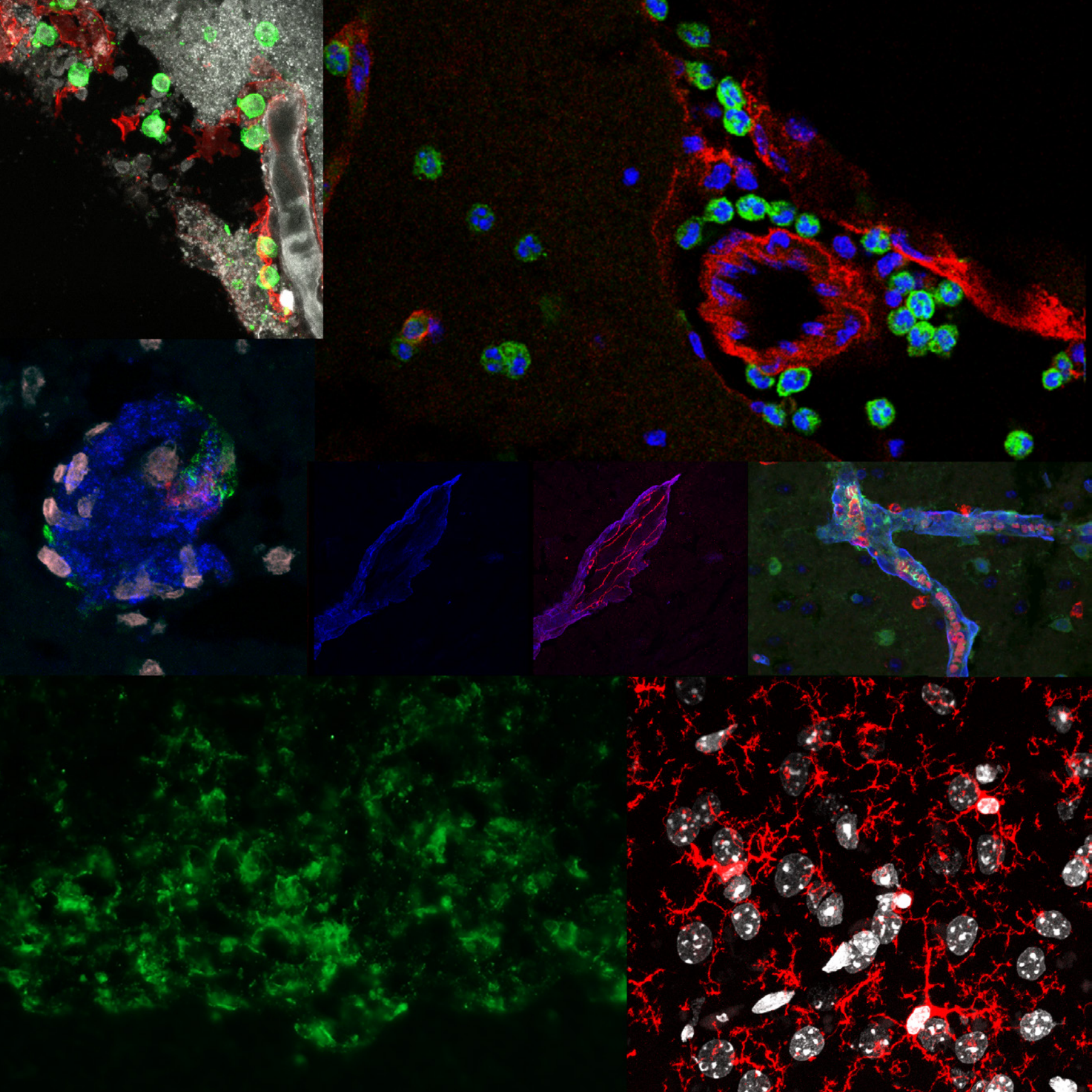
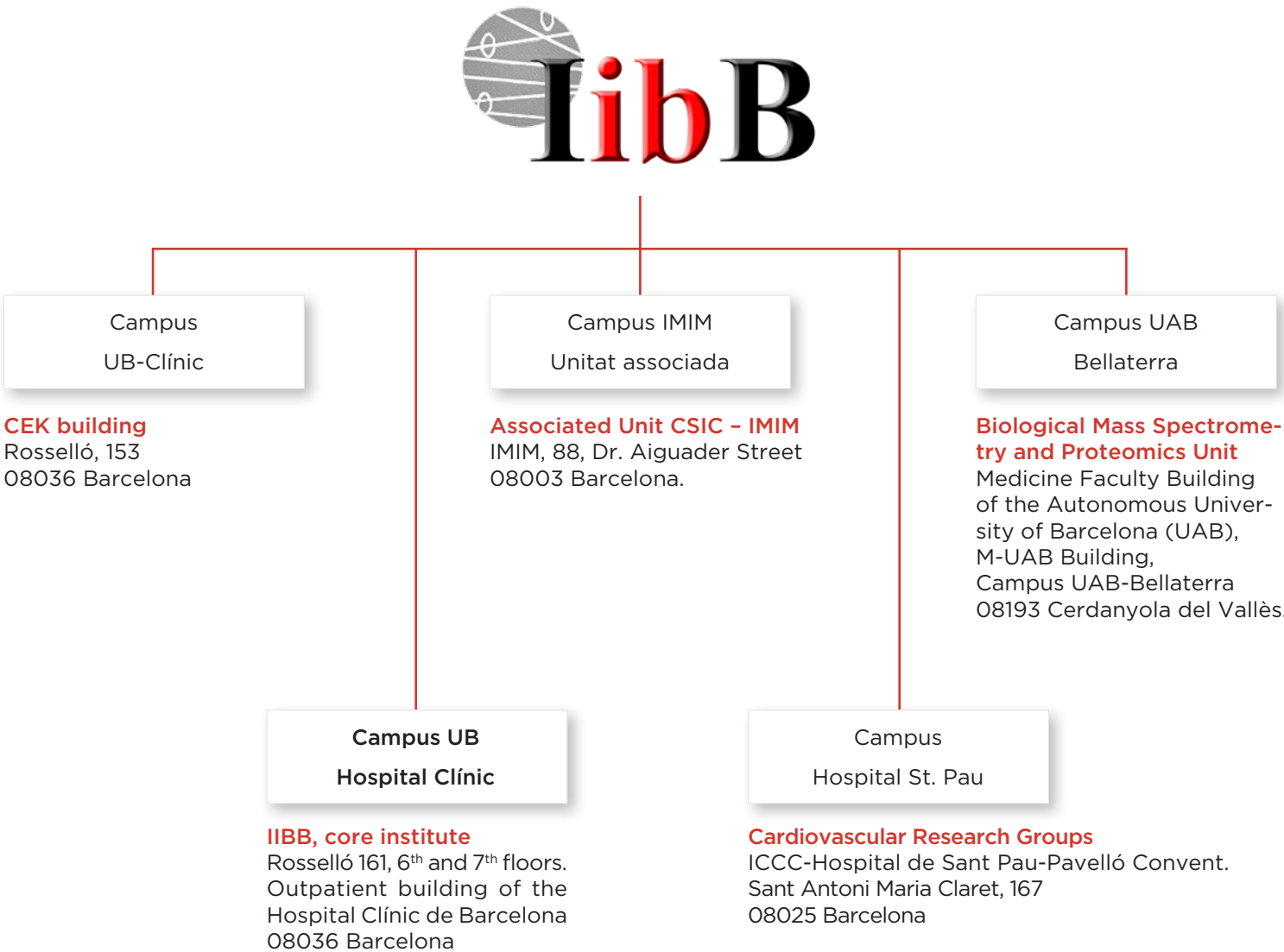
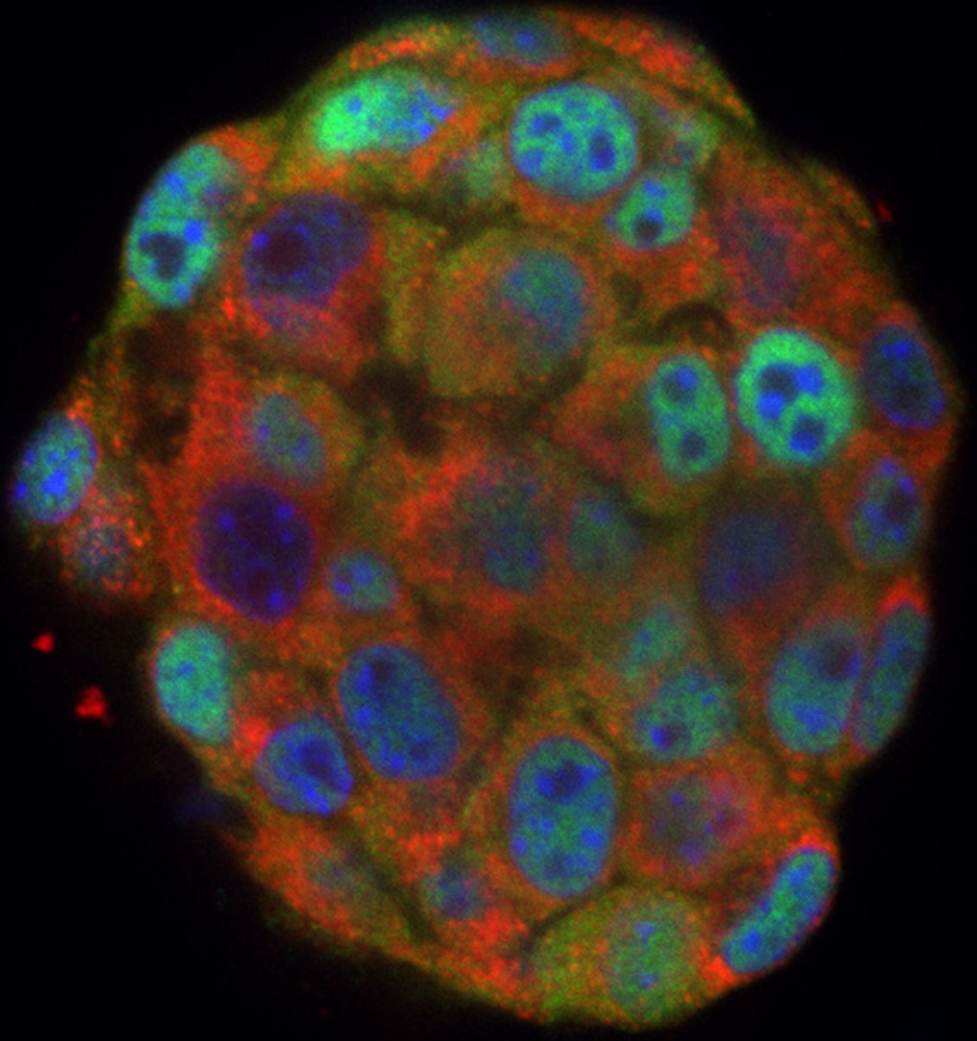
INSTITUTE



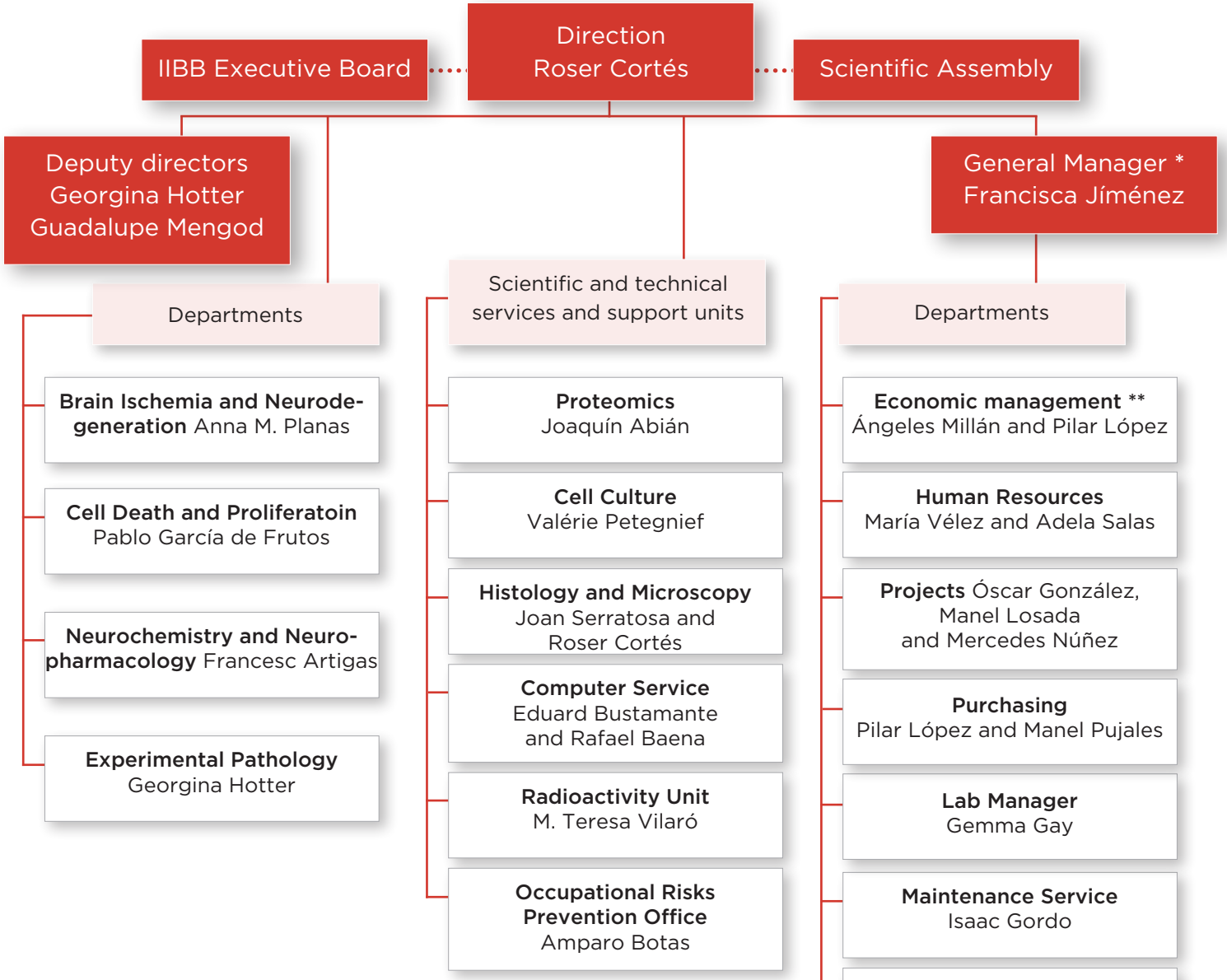
LOCATION


IibB
Campus
UB-Clínic
CEK building
Rosselló, 153
08036 Barcelona
Campus IMIM
Unitat associada
Associated Unit CSIC – IMIM
IMIM, 88, Dr. Aiguader Street
08003 Barcelona.
Campus UAB
Bellaterra
Biological Mass Spectrometry and Proteomics Unit
Medicine Faculty Building of the Autonomous University of Barcelona (UAB), M-UAB Building, Campus UAB-Bellaterra
08193 Cerdanyola del Vallès.
Campus UB
Hospital Clínic
IIBB, core institute
Rosselló 161, 6th and 7th floors.
Outpatient building of the Hospital Clínic de Barcelona
08036 Barcelona
Campus
Hospital St. Pau
Cardiovascular Research Groups
ICCC-Hospital de Sant Pau-Pavelló Convent.
Sant Antoni Maria Claret, 167
08025 Barcelona



ORGANIZATION

Organizational Chart



* Patrícia Saldaña until March 2019
* Joan Ricard Ibáñez as acting manager (April 1st – June 15th)
** Margarita Valderrama (retired January)

Institute Board

Roser Cortés Colomé (President – IIBB's Director)

Patricia Saldaña Figa (Secretary – IIBB's General Manager, until March 31st 2019)

Joan Ricard Ibáñez Villar (Secretary – IIBB's acting General Manager, April 1st – June 15th 2019)

Francisca Jiménez del Valle (Secretary – IIBB's General Manager, from June 16th 2019)

Guadalupe Mengod Los Arcos (Deputy Director)

Georgina Hotter Corripio (Deputy Director and Head of Experimental Pathology Department)

Francesc Artigas Pérez (Head of Neurochemistry and Neuropharmacology Department)

Pablo García de Frutos (Head of Cell Death and Proliferation Department)

Anna Maria Planas Obradors (Head of Brain Ischemia and Neurodegeneration Department)

Mercedes Núñez Calvet (staff delegate until March 2019)

Leticia Campa Montobbio (staff delegate from April 2019)

Mª Ángeles Millán Álvarez (staff delegate from April 2019)

José Martínez González (staff delegate from April 2019)

Scientific Faculty

-CSIC Research Professors:

Francesc Artigas Pérez

José Carlos Fernández-Checa Torres

Guadalupe Mengod Los Arcos

Anna Maria Planas Obradors

Ramon Trullás Oliva

-CSIC Scientific Researchers:

Joaquín Abián Moñux

Montse Bach Elias

Roser Cortés Colomé

Carmen García Ruíz

Georgina Hotter Corripio

Coral Sanfeliu Pujol

Joan Serratosa Serdà

-CSIC Tenured Scientists:

Analia Bortolozzi Biassoni
Montserrat Carrascal Pérez
Daniel Closa Autet
Anna Colell Riera
Pablo García de Frutos
Leif Hove Madsen
Carles Justícia Mercader
Vicenta Llorente Cortés
Montserrat Marí García
José Martínez González
Albert Morales Muñoz
Pilar Navarro Medrano
Carme Solà Subirana
Teresa Vilaró Comas

-Other scientists:

Anna B. Moles (Ramón y Cajal)
Noemí Santana (Researcher CIBERSAM)
Petar Podlesniy (Researcher CIBERNED)

Invited :

-Ad Honorem researchers:

Eduard Rodríguez Farré
Cristina Suñol Esquirol
Joan Roselló Catafau

-Other doctors:

Anna Serrano Mollar (Researcher)
Emma Folch (*Titulado superior especializado*)
Valérie Petegnie (*Titulado superior especializado*)

Departments

Department of Brain Ischemia and Neurodegeneration:

- Cellular Neurobiology
- Aging and Neurodegeneration
- Cerebrovascular Research

Department of Cell Death and Proliferation:

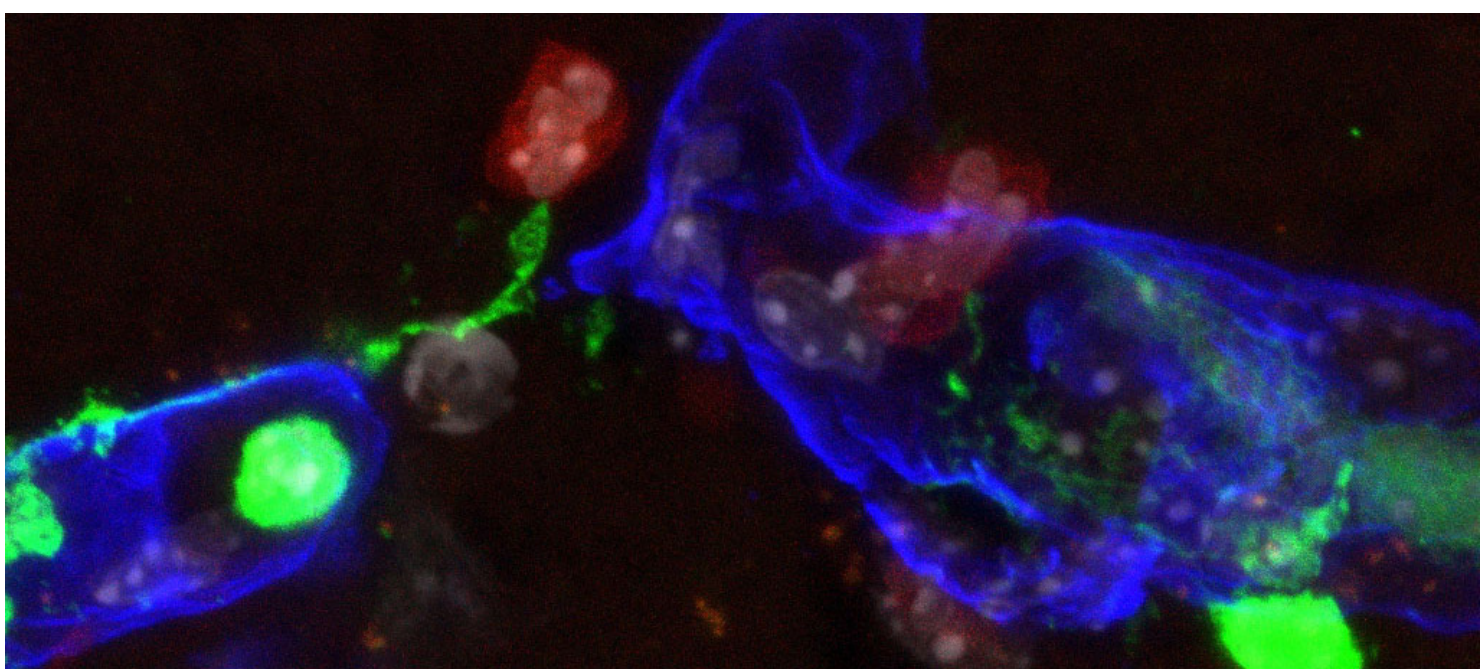
- Hemostasis and Immunity
- Molecular Mechanisms of Neurodegeneration
- Molecular Mechanisms of Cancer
- Mithocondrial Regulation of Cell Death
- RNA and Cancer
- Signalling in Cell Damage and Cancer

Department of Experimental Pathology:

- Biological Mass Spectometry and Proteomics
- Cardiac rhythm and contraction
- Lipids and Cardiovascular Pathology
- Mechanisms of Damage and Recovery in Ischemia
- Vascular Biology and Atherosclerosis
- Regulation of Inflammation

Department of Neurochemistry and Neuropharmacology:

- Molecular Neuropharmacology
- Systems Neuropharmacology



RESEARCH GROUPS

Department of Brain Ischemia and Neurodegeneration

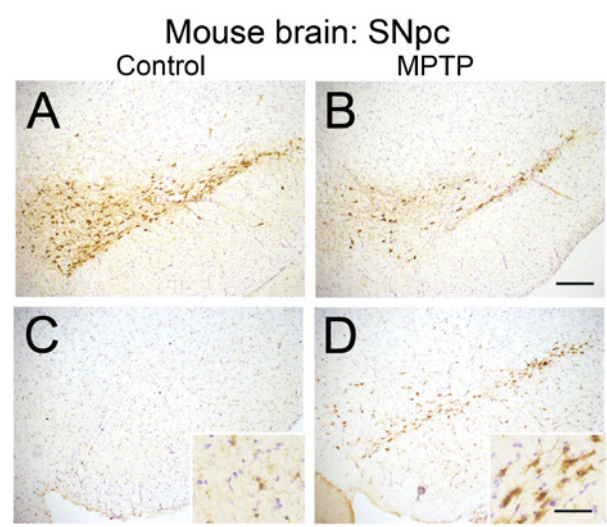
Cellular Neurobiology

Carme Solà Subirana (PI, Tenured scientist)
Joan Serratosa (Scientific researcher)
Neus Rabaneda (PhD student)
Laura Ferigle (Technician trainee)
Ada Bernaus (BSc student)

Neuroinflammation, in which activated glial cells (mainly microglia) are involved, is a key factor in the development of neurological diseases. Our working hypothesis is that the modulation of glial activation may be a therapeutic strategy to act against neuroinflammation and neuronal damage in these disorders. Consequently, it is critical to know the cellular and molecular mechanisms involved.

In the last years, we have been studying the mechanisms of control of the microglial inflammatory response, such as the CD200-C200R1 ligand-receptor pair (inhibitory mechanism) and the C/EBP family of transcription factors (master regulator of the expression of pro-inflammatory factors). We have also been evaluating the effect of parkinsonian neurotoxicants on glial cell function and the anti-inflammatory and neuroprotective properties of new compounds. We identified alterations in CD200 and CD200R1 expression in the brain of multiple sclerosis and Parkinson's disease patients, as well as in experimental in vivo models of these diseases, where a potential neuroprotective role of CD200R1 agonists was suggested. In addition, using in vitro approaches, we found that parkinsonian neurotoxicants impair the immune response of glial cells acting on cell metabolism, pointing out glial cell metabolism as an interesting target to modulate glial activation. We also found that C/EBPbeta deficiency has a neuroprotective effect in an experimental model of multiple sclerosis and that C/EBPdelta is a repressor of alpha-synuclein expression.

At present, we are involved on the study of anti-inflammatory and neuroprotective effects of new compounds using in vitro and in vivo experimental models, with special attention to their action on our proteins of interest and glial cell metabolism. We are also interested on the development of in vitro human microglia models, such as microglia isolation from fresh post mortem brain tissue, monocyte-derived microglia-like cells and iPSCs-derived microglial cells from patients with neurological disorders and their corresponding controls.

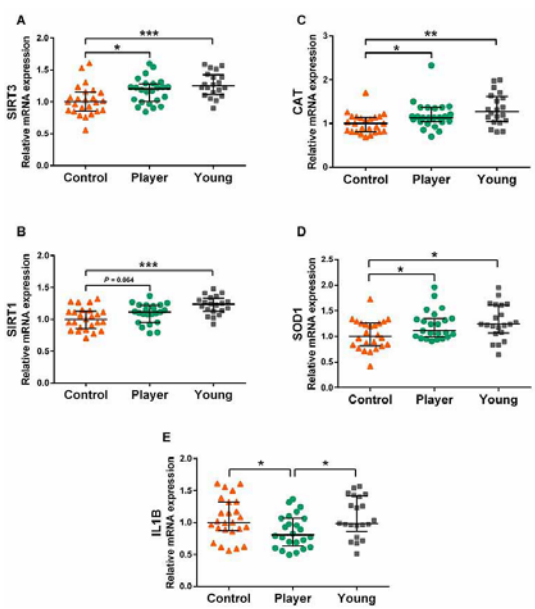


Aging and Neurodegeneration

Coral Sanfeliu Pujol (PI, Scientific researcher)
Cristina Suñol Esquirol (Ad honorem researcher)
Eduard Rodríguez-Farré (Ad honorem CSIC research professor)
Rubén Corpas Expósito (Postdoctoral researcher CIBERESP)
Elisa García Lara (PhD student European Project Targu Mures University)
Alaó Gatius Puchercós (Technician)

Núria Clotet Gispert (MSc in Neuroscience student)
Samuel Aguirre Infantes (MSc in Neuroscience student)
Iovana Solovastru (ERASMUS student Targu Mures University)
Ionut-Viorel Vlad (ERASMUS student Targu Mures University)
Anca-Cristina Staicu (ERASMUS student Targu Mures University)
Lars Andre Jager (Student Hochschule Fresenius)

The research objective is to find new therapeutic strategies to prevent or delay and ultimately to avoid the cognitive loss and dementia that may appear in the advances stages of life. Improvement in health care has propitiated an increase of the longevity average. Unfortunately, there is a concomitant increase of age related diseases. Even though serious health



epidemics such AIDS and the current COVID19, one next pandemic to worry about is Alzheimer's disease (AD). AD is the main cause of dementia in our elders. The research is planned to find endogenous neuroprotective mechanisms to activate or reinforce through pharmacological or non-pharmacological treatments. One such mechanism is the axis SIRT1-SIRT3. We had previously demonstrated in an AD mouse model that physical exercise restores decreased levels of SIRT1 up to wild type mouse levels in parallel with neuroplasticity and neurocognitive improvement; furthermore, we demonstrated the pivotal neuroprotective action of SIRT1 by lentiviral gene expression in the AD mice. We also had proved that the SIRT1 activator natural molecule resveratrol is highly neuroprotective in AD mouse models. Next in 2019, we showed that middle-aged amateur rugby players have a preserved memory in comparison to men with low physical activity. Interestingly, investigation of mRNA levels in whole blood of both cohort groups showed higher levels of SIRT1 and SIRT3 and improvement of downstream targets of oxidative stress and inflammation. These results reinforce the interest of SIRT1 as a neuroprotective hub target. We also delved into resveratrol promotion of proteasoma degradation of abnormal proteins, therefore establishing a new link between SIRT1 activation and neuroprotection against AD. We plan to continue these studies. Also we are investigating a new target against AD, the enzyme soluble epoxide hydrolase which inhibition increases the levels of its substrate, the epoxyeicosatrienoic acids (EETs).

Cerebrovascular Research

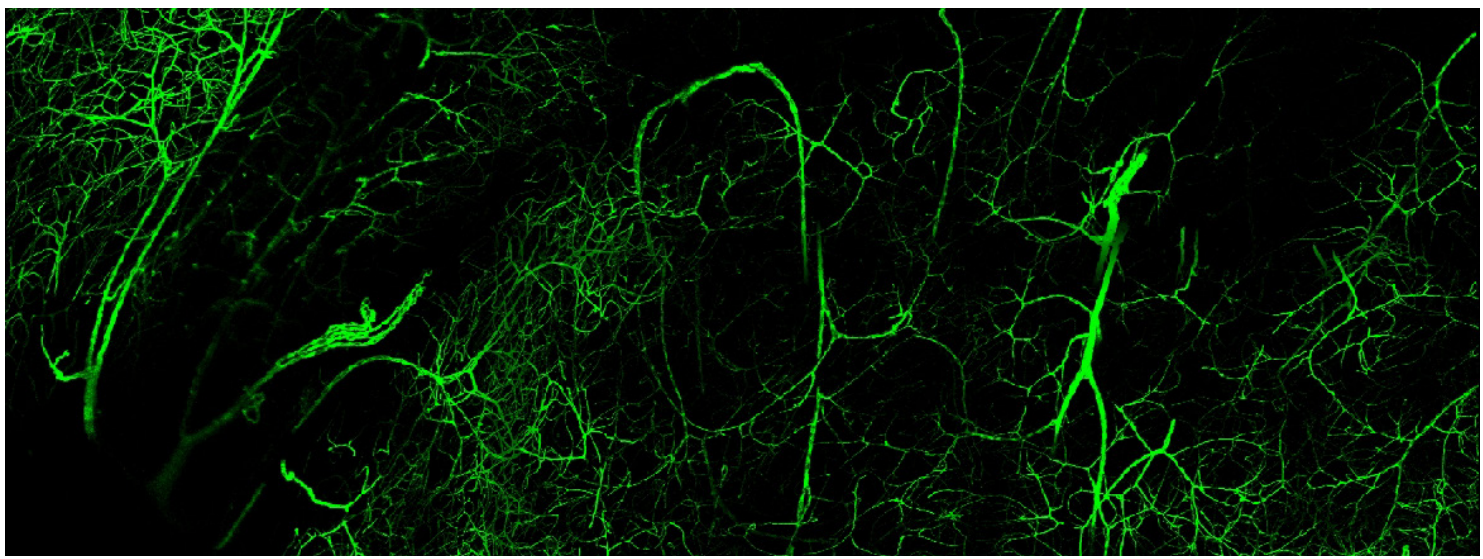
Anna M Planas Obradors (PI, CSIC Professor researcher)
Carles Justicia Mercader (Tenured researcher)
Valérie Petegnief (*Titulado Superior Especializado*)
Leonardo Márquez Kisinousky (*Titulado Técnico Superior*)
Mattia Gallizioli (*Titulado Superior de actividades técnicas y profesionales*, project)
Jordi Pedragosa Ollé (*Titulado Superior de actividades técnicas y profesionales*, project)
Angélica Salas Perdomo (*Titulado Superior Fundació Clínic*)
Maria Arbizar Rovirosa (PhD student FPI)
Sara Figuerola Santamónica (PhD student UE-ITN)
Marina Purroy (PhD student AGAUR)
Judit Nova (*Titulado Superior de actividades técnicas y profesionales*, project)
Sara Eslava (Technician)
Amaia Otxoa de Amezaga (PhD student FPI)
Laura Díaz MarugánM (PhD student La Caixa Foundation)

Stroke is one of the leading causes of death or permanent disability. Treatments are based on recanalization therapies including mechanical thrombectomy and/or tissue plasminogen activator. Our team investigates the physiopathology of cerebrovascular diseases, including stroke and chronic vascular disorders. A main focus of our research is the inflammatory and immune responses to brain damage.

Our strategic objectives are:

1. To identify the molecular signatures of the microglial response to brain injury after stroke and their role in stroke outcome.

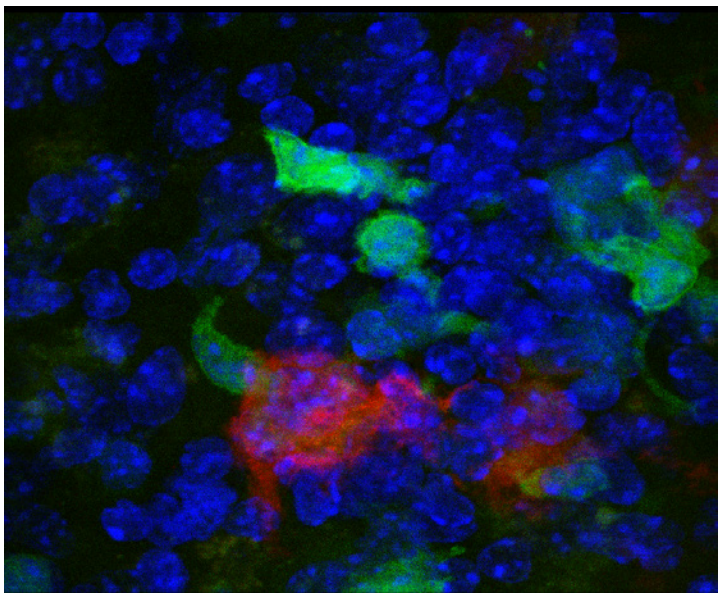
2. To find out the involvement of dendritic cells and other leukocytes infiltrating the brain tissue after stroke in tissue damage and repair.

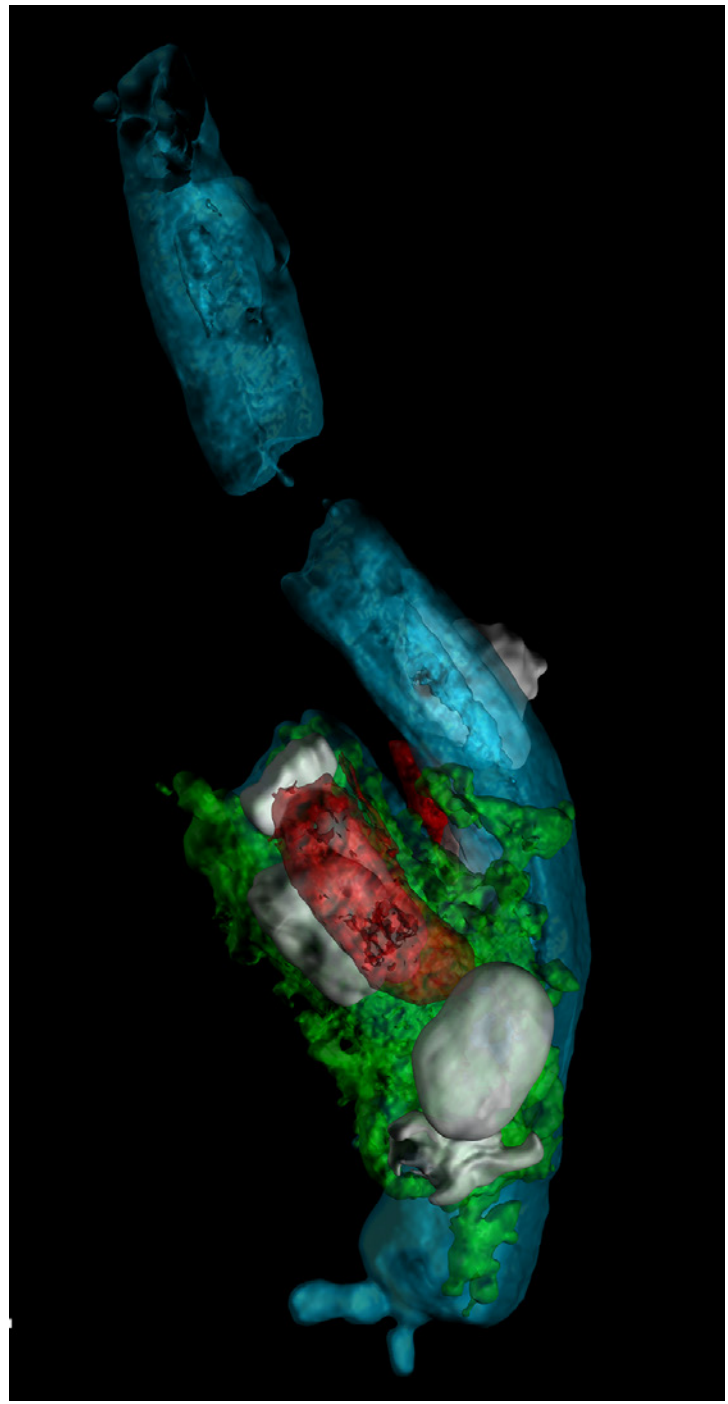


3. To get insight into the interaction between the central nervous system, the immune system, and gut microbiota in cerebrovascular diseases.

4. To characterise determinants of the crosstalk between brain resident microglia and perivascular macrophages with the vascular endothelium.

5. To typify the impact of aging and co-morbidities on brain pathology and on the impairment of the neurological function. To this end we work with experimental animal models, cell cultures, and human tissues. We conduct studies using imaging techniques, including MRI and confocal microscopy, flow cytometry, transcriptomics, histology, general cell and molecular biology techniques, and some behavioural studies. We collaborate with the Stroke Unit of Hospital Clinic with the view of carrying out translational research integrating the results of experimental models and clinical studies. Our ultimate aim is to contribute to discover novel druggable targets for therapeutic intervention in application to stroke and other cerebrovascular diseases.





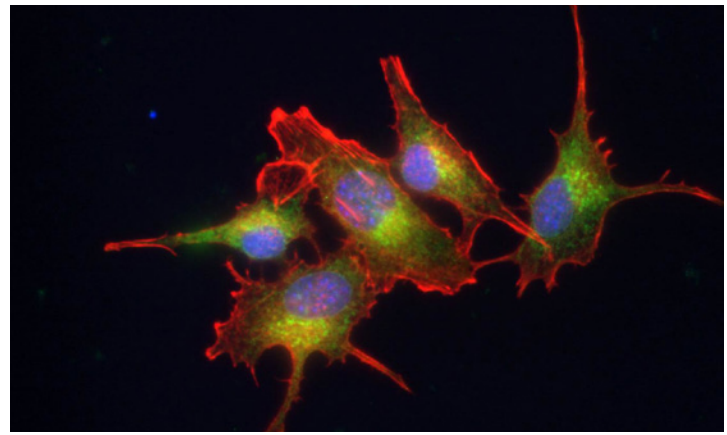
Department of Cell Death and Proliferation

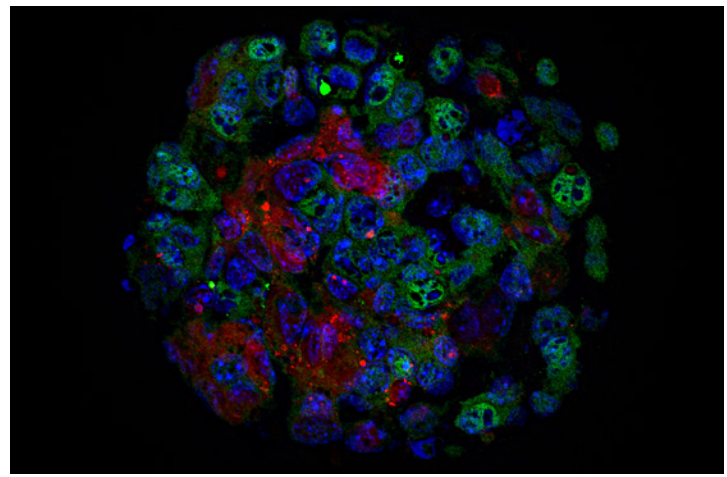
Hemostasis and Immunity

Pablo Garcia de Frutos (PI, Tenured researcher)
Maria Cristina Areste Calero (Technician)
Helena Cristobal Valero (Technician IDIBAPS)
Domenico Calafato (ERASMUS student)
Lorena Fernández de Larrea (Student)

The group studies the contribution of a family of proteins, the vitamin K-dependent proteins (VKDPs) and their receptors in human pathology. The idea that we have today is that the mechanisms of coagulation are integral to the body's response to injury and are part of the activation cascades that lead to inflammation and clotting. Our group studies the small group of vitamin K dependent proteins; a post-translational modification that it is known to occur in no more than twenty human proteins.

VKDPs are able to interact in a calcium-dependent manner with negatively charged membranes found in the activated endothelium or platelets and in the early stages of apoptosis. At the same time, VKDPs also interact with membrane receptors, acting as ligands in response to damage processes. We are particularly interested in two genes of this family (PROS1 and GAS6). GAS6 and PROS1 are special in interacting with receptor tyrosine kinases, therefore eliciting growth factor-like actions upon cells. In order to study their biological function, we have used mouse models of haemostasia, atherosclerosis and cardiovascular disease. We have also studied these components in the context of human pathology, mainly cardiovascular pathology, but also autoimmune and liver diseases, among others. One aspect we have analysed is the genetic variants in GAS6 and PROS1 genes and their functional implications. Recently we discovered a connection of this system with fibrosis formation in different tissues, including heart and the liver. Fibrosis is a central mechanism to several chronic pathologies. During 2019, this was our main research focus.





Molecular Mechanisms of Neurodegeneration

Ramon Trullás Oliva (PI, CSIC Research professor)
Petar Podlesniy (Research scientist CIBERNED)
Maria Pedraza (Research scientist University of Göteborg)
Margalida Puigròs Serra (PhD student)
Georgia Papadimitriou (PhD student stage, National and Kapodistrian University of Athens)
Nuria Serra Barea (Technician CIBERNED)
Andrea Reparaz Suelves (Technician CIBERNED)

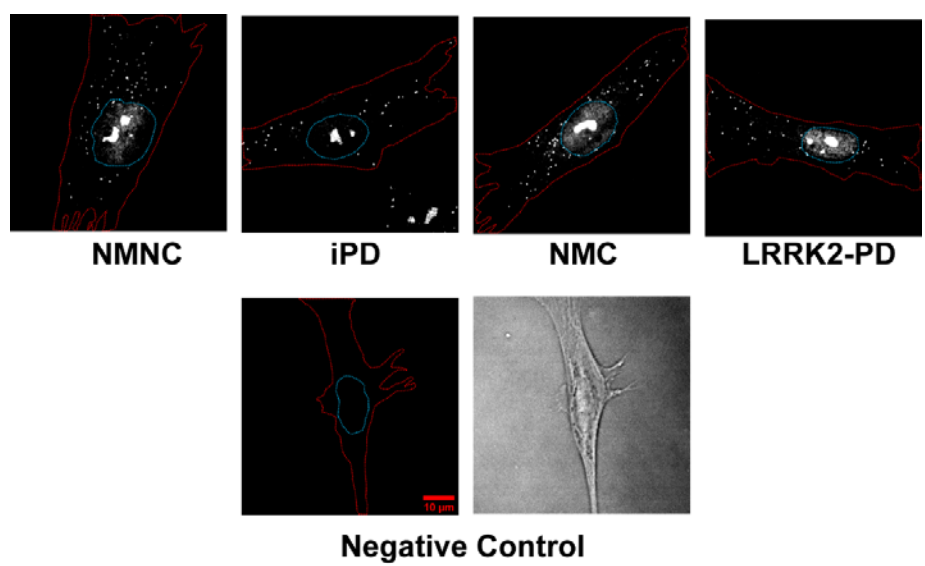
This group investigates the molecular mechanisms of neuronal death to identify new therapeutic targets for the treatment of neurodegenerative diseases. Our team is also affiliated with the Center for Biomedical Research in Neurodegenerative Diseases, CIBERNED.

It is working on identifying molecular mechanisms of neurodegenerative diseases such as Alzheimer's and Parkinson's and on finding the necessary tools to prevent this.

Researchers have based its research on the hypothesis that neurodegeneration leads to alteration of the mitochondrial function. Studying the mitochondrial function, identifying the causes of its alteration and determining how it triggers neurodegeneration are the group's main objectives.

The group has discovered that a reduction in mitochondrial DNA content precedes the development of Alzheimer's disease. It is now investigating the role of mitochondrial DNA transcription and replication in neurodegenerative diseases.

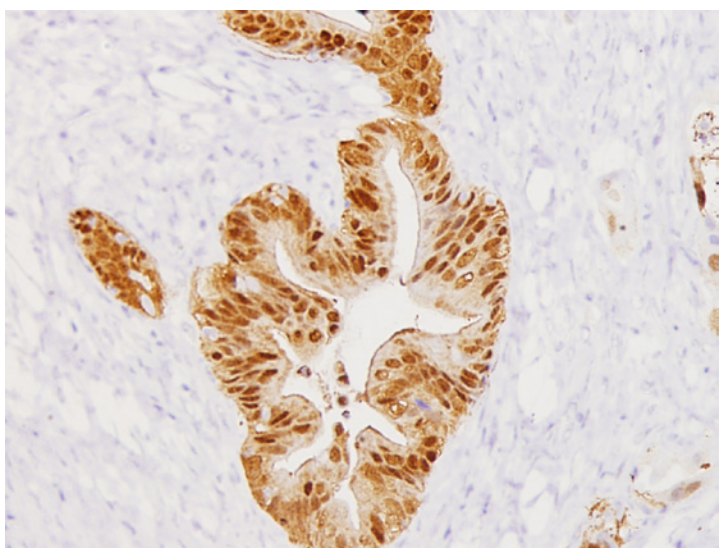
Using a digital PCR method previously characterized in our laboratory, during the year 2019 we have investigated the relationship between replication, transcription and release of mitochondrial DNA in fibroblasts from patients with idiopathic and familial Parkinson's disease. The results obtained demonstrate that patients with Parkinson's disease, whether idiopathic or familial, manifest a decrease in replication accompanied by an increase in transcription of mitochondrial DNA. Furthermore, we have continued to investigate the relationship between the content of cell-free mitochondrial DNA in the cerebrospinal fluid and the progression of Alzheimer's disease.



Molecular Mechanisms of Cancer

Pilar Navarro Medrano (PI, Tenured scientist)
Domenico Calafato (ERASMUS student)
Mireia Bachiller García (Student JAE Intro)

Our group is a multidisciplinary team composed of basic and clinical researchers integrated into the Associated Unit IIBB-IMIM (June 2018-present), a collaboration agreement between IIBB and IMIM-Hospital del Mar. We have a long-lasting experience in the study of molecular mechanisms of cancer development and progression, with the final goal to identify new targets for cancer diagnosis and treatment.



Our research has led to the identification of novel molecular mechanisms contributing to cancer progression, including:

1. The discovery of novel pathways for gene expression regulation in cancer, including the CPEB family of RNA binding proteins and the DEAD-box helicase Ddx6;

2. The identification of a key role of Galectin-1 (Gal1) in promoting pancreatic carcinogenesis through activation of tumor-microenvironment crosstalk, emerging as a new target for cancer diagnosis and therapy.

We have also shown novel functions of Poly(ADP) ribose polymerases (PARPs) in cancer, with potential clinical translation. Although most of our studies have been focused on pancreatic cancer, one of the most aggressive tumors and the 3rd leading cause of cancer-related death, we are currently extending these studies to other cancers where these targets are also altered, like prostate and bladder tumors.

In the following years, we aim to translate our previous generated knowledge into clinical opportunities for cancer therapy and diagnosis. In particular, we aim to validate Galectin-1 inhibitors as novel cancer immunotherapy and to generate therapeutic tools based in DDX6 inhibition as cancer treatment. Moreover, we will try to identify novel biomarkers for early cancer detection. Overall, our research will open new avenues for the management of cancer patients, leading to novel target-driven therapies and to the identification of new biomarkers for improved early diagnosis.

Mithocondrial Regulation of Cell Death

José Carlos Fernández-Checa (PI, CSIC Research Professor)
Carmen García Ruiz (Scientific researcher)
Vicent Ribas Serra (Researcher, project)
Ana Moles Fernández (Researcher Ramón y Cajal fellow)
Laura Conde de la Rosa (Researcher CIBER)
Raquel Fucho Salvador (Postdoctoral researcher Juan de la Cierva fellow)
Naroa Insausti Urkia (PhD student FPI/FPU)
David Robles Sánchez (PhD student FPI)
Estel Solsona Vilarrasa (PhD student FPU)
Paloma Ruiz Blazquez (Student JAE Intro)
Alberto Edo Pérez (Student JAE Intro)
Rubén Mollá (Student JAE Intro)
Sandra Torres Núñez (Technician)
Susana Núñez Pozuelo (Technician)
Valeria Pistorio (Stage)
Laura Martínez Domingo (Technician trainee)
Gemma Torrodà (Technician trainee)

Our group has focused on the role of structural lipids in cell signaling and human disease. Our work has added a new dimension describing critical roles of cholesterol and cholesterol and sphingolipids (SL) in the regulation of cell death by targeting mitochondrial membranes, leading to the progression of prevalent human diseases, including fatty liver disease (FLD) progression to liver cancer as well as in major neurodegenerative diseases, predominantly Alzheimer´s disease (AD) and lysosomal storage disorders, like Niemann-Pick type A and C.

We have unravelled the role of mitochondrial cholesterol trafficking in the above mentioned diseases and discovered the upregulation of STARD1, a mitochondrial cholesterol transporter responsible for the trafficking of cholesterol to the mitochondrial inner membrane (MIM). STARD1 is rather low in the liver, but it is remarkably induced in pathological states, including steatohepatitis, an advanced stage of FLD, which encompasses both alcoholic (ASH) and nonalcoholic steatohepatitis (NASH) characterized by inflammation, fibrosis and hepatocellular demise, that can progress to hepatocellular carcinoma (HCC). As a proof of concept for the role of STARD1 in liver disease, we have generated STARD1 floxed mice to develop different mouse lines with deletion of STAD1 in hepatocytes and nonparenchymal cells (hepatic stellate cells and Kupffer cells). Its induction has been also identified as a critical player in drug-induced liver injury and emerges as a novel therapeutic target to protect against acetaminophen hepatotoxicity. Similar to the liver diseases, we have described recently the induction of STARD1 in patients with AD and Down Syndrome—a genetically determined form of AD--while mice with genetic deletion of STAD1 in neurons are resistant to diet-induced AD-like symptons.

We have also investigated the role of SL in liver diseases, and have identified acid sphingomyelinase as a mechanism for the rapid generation of ceramide in specific acidic compartments in both ASH and NASH. Finally, our recent observations described a previously unrecognized role for sphingomyelin synthase 1 in the induction of hepatocyte pyroptosis as a requirement for NASH progression.

Montserrat Bach Elias (Scientific researcher)

Results previous 2019:
The proto-oncogen H-Ras codifies for two proteins, p21 H-Ras is (p21) and p19 H-Ras (p19), indicating that the complete function of this proto-oncogen is driven by the combination of those two proteins. P19 has a different function from p21. We have characterized p19 H-Ras and our results indicate that: a) p19 is not found at the cytoplasmic membrane and present a perinuclear staining; b) p19 binds to RACK1; c) p19 also binds to p73α y p73β, which are tumor suppressors members of the p53 family, but p19 shows no binding to p53; d) p19 up-regulates TCTP, a guanosine exchange factor (GEF) for Rheb, and hipo- and hyperphosphorylates Akt and ERK, respectively; e) p19 up-regulates the following miRNAs expression: mir-342, mir-206, mir-330, mir-138 and mir-99b; f) the p19 overexpression induces G1/S delay, that in combination with the hypophosphorylation of Akt maintains the cell in a reversible quiescence and prevents the cell to undergoes to apoptosis. We have published that IDX and the silencer rasISS1 can form a secondary structure of stem-loop that is regulated by the p68 RNA helicase.

More Recent Results:
P19G12S Costello Syndrome mutants show a clear upregulation of miR-374, miR-126, miR-342, miR-330, miR-335 and let-7.

We provided strong evidence for the participation of p68 RNA helicase in mTOR regulation. In detail, depletion of this helicase decreases cell growth and activates the mTOR/MDM2 cell survival mechanism, which ultimately leads to inhibition of the pro-apoptotic activity. p68 RNA helicase downregulation strongly stimulates 4E-BP1 phosphorylation, thereby provoking activation of cap-dependent translation. Interestingly, p68 RNA helicase depletion decreases cell growth while activating the mTOR/MDM2 cell survival mechanism. As MDM2 is a known negative regulator of p53, we infer that the activation of the cell survival mechanism may result in inhibition of the pro-apoptotic factor p53. Finally, p68 RNA helicase depletion activates cap dependent translation and inhibits c-MYC IRES-mediated translation.

Results 2019 and future objectives:

We show that an important RNA sequence region, encompassing a mixed exon-intron Hairpin-Loop (also labelled as IDX-rasISS1), of the H-Ras pre-mRNA may contain a ncRNA that regulates p68 RNA helicase. Moreover, upregulation of the Hairpin-Loop produces similar effects to p68 RNA helicase-mediated interference. This latter finding led us to conclude that the alternative splicing exon IDX from H-Ras, together with the immediately downstream intron sequences, contains a mixed exon/intron ncRNA whose expression is regulated by the alternative splicing decisions.

Further studies are directed to elucidate the structure of this exon/intron RNA ncRNA containing the IDX H-Ras exon and the role of p68 RNA helicase on this ncRNA regulation.

Signalling in Cell Damage and Cancer

Albert Morales Muñoz (PI, Tenured scientist)
Anna Colell Riera (Tenured scientist)
Montserrat Marí García (Tenured scientist)
Estefania de Gregorio Robles (Postdoctoral researcher)
Anna Tutusaus López (Postdoctoral researcher)

Blanca Cucarull Martínez (PhD student FPU)
Cristina De Dios Conde (PhD student FPU)
Vicente Roca Agujetas (PhD student)
Laura Rebeca Lestón Pinilla (MSc student)
Miguel Subías Burrel (MSc student)

Our group focuses its research on the study of intracellular and intercellular mechanisms that are activated in response to injury, particularly in liver and neurodegenerative diseases as well as processes of carcinogenesis. The ultimate goal is a better understanding of the signaling involved in specific pathologies which allowing the development of therapeutic interventions to improve the treatment of human disease.

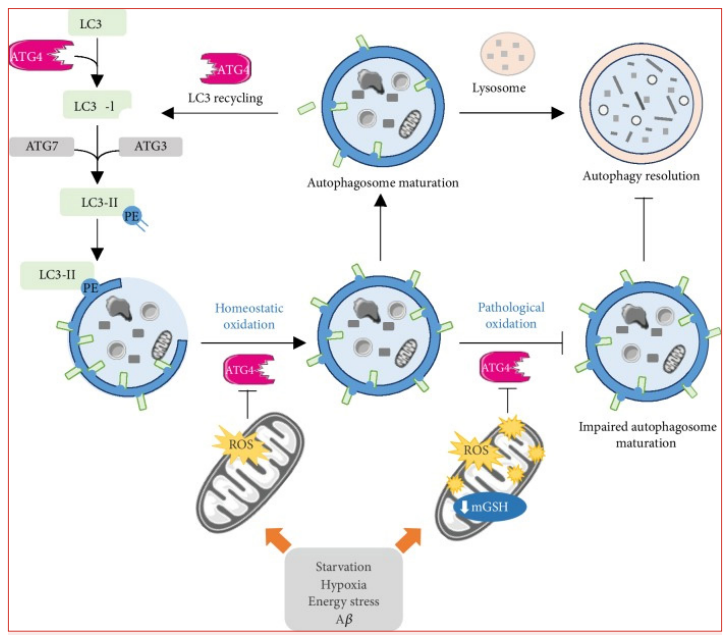
The main lines of research we address are:
- Therapeutic targets in Alzheimer's disease (Dr. Anna Colell).

- Mechanisms in liver inflammation and fibrosis (Dr. Montserrat Marí).

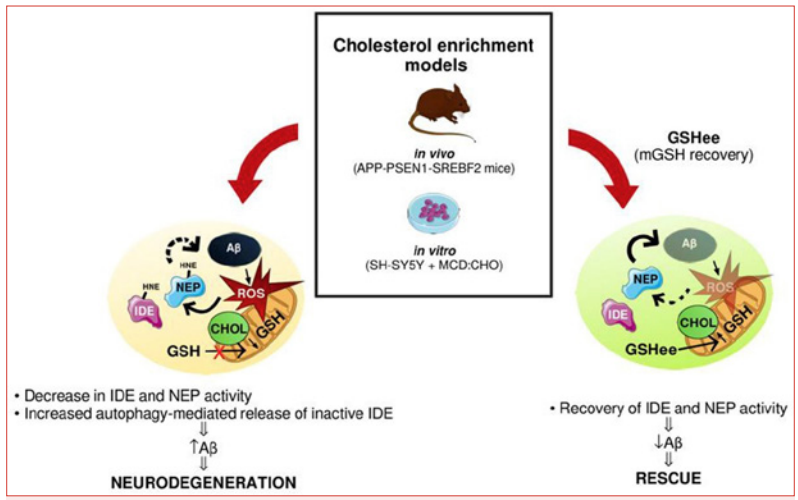
- Therapies in hepatocellular damage and cancer (Dr. Albert Morales).

During 2019 our main contributions has been to demonstrate the important role in Alzheimer disease of reactive oxygen species (ROS) via oxidative inactivation of amyloid beta-degrading proteases caused by cholesterol-enhanced mitochondrial stress (de Dios et al, Redox Biol. 2019). These results have contributed to explain the mitochondrial control of autophagy and its regulation by oxidative stress relevant not only to neurodegenerative diseases but also in other cardiovascular, chronic kidney and liver pathologies.

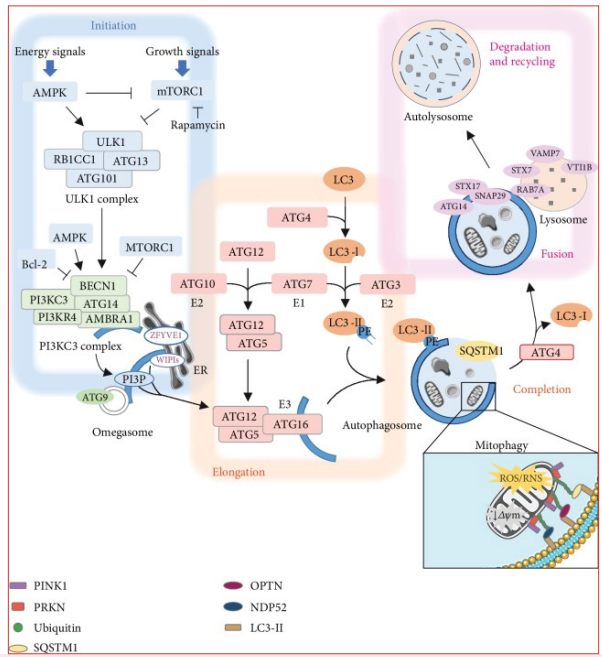
Moreover, our group has participated in proposing nutraceuticals rich in omega-3 fatty accids to improve complications of advanced chronic liver diseases and characterized the role of the GAS6/AXL axis in the development of non-alcoholic steatohepatitis (NASH) and liver cancer.



Roca-Agujetas V, de Dios C, Lestón L, Marí M, Morales A, Colell A. Recent Insights into the Mitochondrial Role in Autophagy and Its Regulation by Oxidative Stress. Oxid Med Cell Longev. 2019;2019:3809308. Published 2019 Nov 4. doi:10.1155/2019/3809308



De Dios C, Bartolessis I, Roca-Agujetas V, et al. Oxidative inactivation of amyloid beta-degrading proteases by cholesterol-enhanced mitochondrial stress. Redox Biol. 2019;26:101283. doi:10.1016/j.redox.2019.101283



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Department of Experimental Pathology

Biological Mass Spectometry and Proteomics

Joaquín Abian Moñux (PI, Scientific researcher)
Montserrat Carrascal Pérez (Tenured scientist)
Oscar Gallardo Román (*Técnico Superior*, project)
Teresa García Berrocoso (Technician PTA)
Vanessa Casas López (*Técnico superior de apoyo a la investigación UAB*)

Research and development in methods and technologies related to the study of protein expression in humans and other organisms. Main areas of research include quantitative proteomics, the study of post-translational modifications (phosphoproteome, acetylome and ubiquitinome), with a special interest in biological fluids, and the application of Proteomics on wastewater-based epidemiology.

The research group is at the Autonomous University of Barcelona's campus in the context of an agreement CSIC-UAB to establish the LP-CSIC/UAB shared laboratory.

We focus our efforts on the discovery of new protein markers of disease, mainly in the area of immunology, microbiology and environmental epidemiology. During the last years, we built an open-access database of post-translational modification sites in the primary human T cell including their dynamics during activation. Recently, in collaboration with a leading group in environmental sciences, we started a new line in sewage water epidemiology showing for the first time the monitorization of human protein biomarkers in this media.

The group is a member of ProteoRed, the Spanish net of Proteomics laboratories under the umbrella of the ISCIII. As part of this network our laboratory contributes its experience on the analysis of post-translational modifications and participates in different initiatives within the net, such as The Human Proteome Project, an international multicentre project for the description of the human proteome sponsored by the Human Proteome Organization (HUPO).

Our research implies an important component of methodological and technological development mainly in the field of capillary liquid chromatography, mass spectrometry and bioinformatics. The main issues addressed include the characterization of post-translational modifications, the quantitative analysis of proteomes and de novo protein identification.

Our goal is to make immediately available the results of our research and development tasks to other projects and to the scientific community at large through a quick and transparent transfer of the methodologies to the IIBB Proteomics Services Unit.

Carrascal el al. Sci Total Environ. 2020, 747:141145.

Cardiac Rythm and Contraction

Leif Hove Madsen (PI, Tenured researcher)
Sergi Casabella Ramon (PhD student FPU)
Saray Varona Alvarez (Technician)
Hildegard Colino Lage (Technician)
Maria del Carmen Tarifa Lora (Technician)

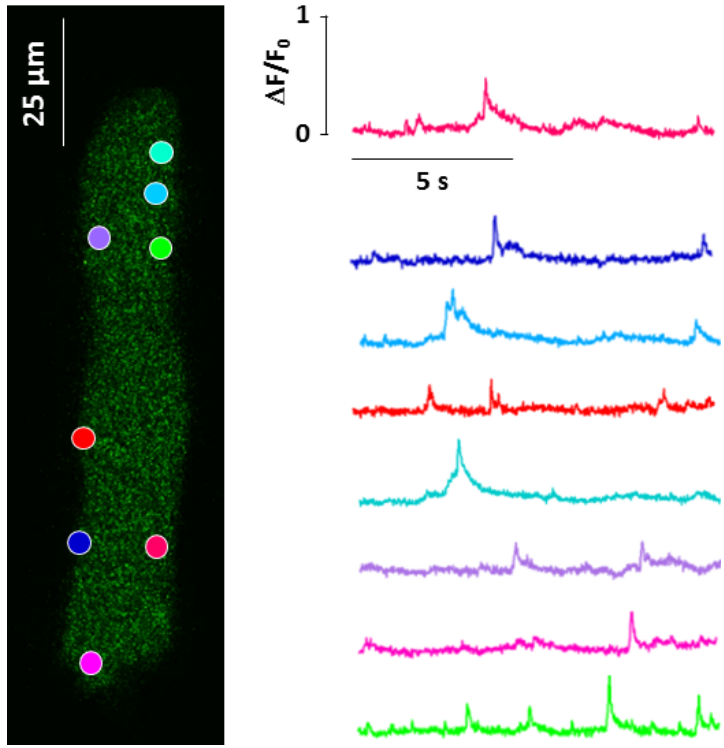
Our group focuses on patho-physiological aspects of cardiac excitation-contraction coupling and arrhythmogenesis.

Our goal is to improve the understanding of key genetic and molecular factors underlying the development of pathological changes in cardiac contraction and rhythm using patch-clamp technique and confocal calcium imaging in situ and in vitro.

Currently, funded projects and research collaborations are focusing on:

1. The functional role of single nucleotide polymorphisms associated with risk of atrial fibrillation.

2. Remodeling of adenosine receptor function on in patients with atrial fibrillation and its role in the development of abnormal calcium handling.



Lipids and Cardiovascular Pathology

Concepción Vicenta Llorente Cortés (PI, Tenured scientist)
Aleyda Benítez Amaro (PhD student ISCIII)
David De Gonzalo Calvo (Postdoctoral researcher Juan de la Cierva fellow)
Jesús Eduardo García Rodríguez (Student JAE Intro)
Albert Coloma (BSc student University of Vic)
Àngels Solanelles (Student University of Lleida)
Yazmin Estela Torres (Predoctoral stage, Instituto Nacional de Cardiología, Universidad de México)
Thalia Belmonte (Predoctoral stage, University of Cádiz)

Our research group focuses on:

1. Search of new molecular mechanisms underlying abnormal cholesterol accumulation in the vasculature to find innovative treatments in atherosclerosis.

2. Identification of new peptidic and omic biomarkers useful in the detection of mechanisms underlying cardiovascular disease.

The group has been pioneer in identifying the main processes involved the formation of foam cells from smooth muscle cell (SMC) origin. We showed that SMC-foam cells acquire a phenotype highly prothrombotic that plays a crucial role in plaque destabilization and evolution towards clinical events. We have consistently demonstrated that the lipoprotein receptor, LRP1, through its pathological function of facilitating the transfer of cholesterol from atherogenic lipoproteins to vasculature and myocardium, contributes to the onset and development of several diseases of great prevalence in our society such as atherosclerosis, ischemic and diabetic myocardiopathies. In addition, the group has now an extensive productive work identifying new proteic and epigenomic biomarkers useful to improve the diagnosis and prognosis of cardiovascular and metabolic diseases.

Currently, we are investing a big effort to develop new compounds to target SMC and cardiomyocyte cholesterol loading through regulation of LRP1 interaction with atherogenic lipoproteins. Currently, we have available in the group peptides and antibodies with proven efficacy in atherosclerosis that could be potentially useful in several cardiomyopathies. To advance these compounds towards the clinics, we have established strategical collaborations with clinicians from SantPau's and other national and international traslational groups.

Our specific goals for the next future are to integrate genomic and functional in vivo studies to validate LRP1 as a new therapeutical target and potential biomarker in cardiometabolic diseases; to maintain and amplify relationship with expert groups regarding translation in cardiometabolism; to maintain and strengthen national and international collaborations to set up future applications for European funding; to advance in collaborations with companies wth the aim of developing new products useful for prognosis, diagnosis and treatment of cardiometabolic diseases.

Mechanisms of Damage and Recovery in Ischemia

Georgina Hotter Corripio (PI, Scientific researcher)
Priscila Calle Hinojosa (PhD student)
Ana Ferrero Andrés (PhD student)
Emma Folch Puy (*Titulado superior especializado*)
Mª Ángeles Muñoz Herrero (Technician)
Arnau Panisello (Researcher)
Joan Rosello Catafau (Ad Honorem researcher)
Riu Gonçalo Teixeira Da Silva (PhD student Marie Curie)
Soraya Játiva (Reseracher, project)
Selene Torrico (PhD student, project)
Miriam García Boscá (Technician, project)

Our research program is mainly focused on:

-The identification of the mechanisms associated with regeneration, prevention, and monitoring of ischemia/reperfusion damage in abdominal pathologies.

-Development and application of new therapies aimed at preventing tissue damage and promoting regeneration (based on pharmacological, gene delivery, cell therapy or nanotechnological approaches).

Specifically, the goals pursued on 2019 have been related to the specific objectives in the national, FIS and European projects, led by the group's principal investigators:

1. The role of macrophage phagocytosis in fibrosis and the development of a new therapy of genetically modified macrophages to reduce renal fibrosis.

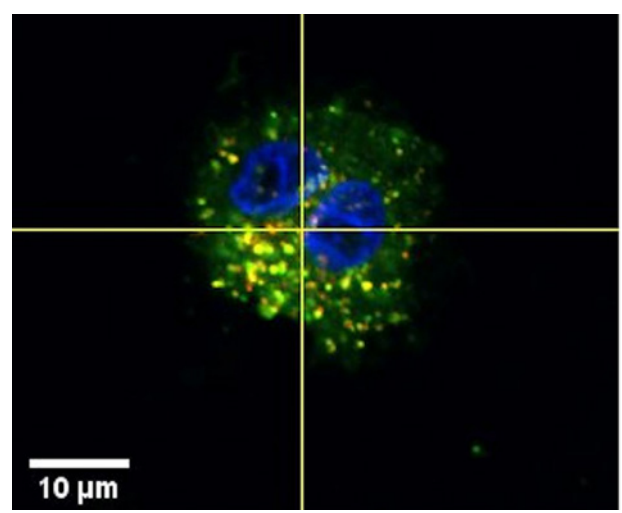
2. The development of new organ preservation solutions and strategies to prevent ischemia/reperfusion injury associated with liver transplantation.

3. The use of polyethylene glycols as therapeutic tool for the management of secondary complications associated with acute pancreatitis and pancreas transplantation.

4. The development and industrial application of the above objectives through contracts and/or participation in the group's "spin offs".

Experimental models in vitro and in vivo in rat/mouse include models of acute renal failure and chronic renal disease (renal fibrosis), acute pancreatic inflammation, hepatic and pancreatic ischemia reperfusion, and organ preservation in experimental transplantation.

The members of the group are part of CIBER groups from two areas: Hepatic and digestive diseases (CIBEREHD) and Bioengineering, Biomaterials and Nanomedicine (CIBER-BBN).



Vascular Biology and Atherosclerosis

José Martínez González (PI, Tenured researcher)
Laia Cañes Esteve (PhD student AGAUR)
Carme Ballester Servera (Technician)
Judith Alonso Nieto (Postdoctoral researcher CIBERCV)
Saray Varona Álvarez (Postdoctoral researcher CIBERCV)

Our group investigates key aspects of vascular biology, atherothrombosis and myocardial pathophysiology geared towards the characterization of the cellular and molecular mechanisms involved in the onset, progression and complication of atherotrombotic diseases (ischemic heart disease (IHD) and peripheral artery disease (PAD)), abdominal aortic aneurysm (AAA) and cardiac hypertrophy. The group analyses the role of NR4A nuclear receptors, in particular NOR-1 (NR4A3), and lysyl oxidases (LOX) in these pathologies using multidisciplinary and translational approaches. Our ultimate goal is to identify novel therapeutic targets and biomarkers to better manage these highly prevalent diseases.

The specific objectives pursued are:

1. Characterization of new molecular mechanisms underlying vascular dysfunction in IHD, PAD and AAA.

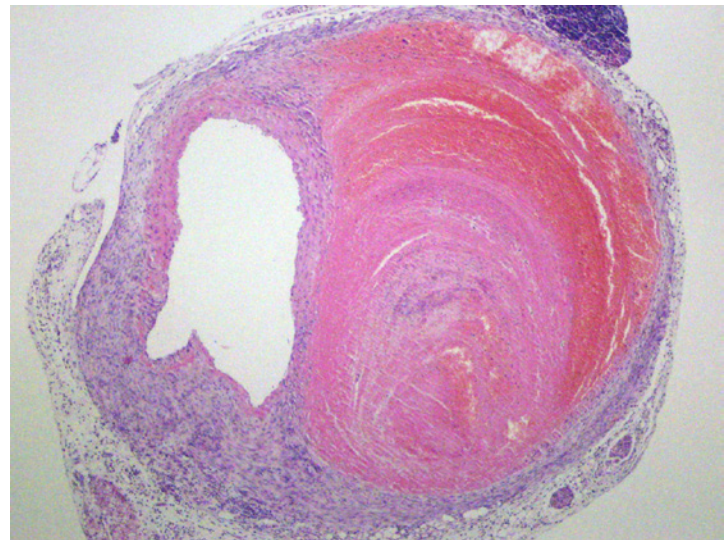
2. Identification of new proteins/structural genes modulating critical cell functions (migration, proliferation, survival and apoptosis), in particular, those regulated by NR4A receptors and LOX.

3. Development and validation of new animal models for cardiovascular diseases, in particular, those related to NR4A receptors and LOX.

4. Analysis of the mechanisms underlying vascular calcification in advanced atherosclerosis and its potential pharmacological modulation, focusing on the contribution of LOX and NR4A receptors.

5. tudy of the role of NR4A receptors modulating cardiac function, calcium homeostasis and cardioprotection.

Our findings in 2019 have uncovered (i) the relevant role of NOR-1 in the pathological remodelling involved in hypertensive cardiac hypertrophy, establishing a new mouse model, for this disease, and (ii) how NR4A receptors participate in the signalling pathway of CD69, an immunomodulatory molecule that we identified as a new receptor for oxidized LDL and an early predictor of subclinical atherosclerosis.



Regulation of Inflammation

Daniel Closa Autet (PI, Tenured scientist)
Anna Serrano Mollar (Researcher)
Luis Ignacio Sánchez (Technician)
Aina Areny Balageró (PhD student)

Our research group focuses on the study of the regulatory mechanisms of inflammation and fibrosis using models acute pancreatitis and idiopathic pulmonary fibrosis.

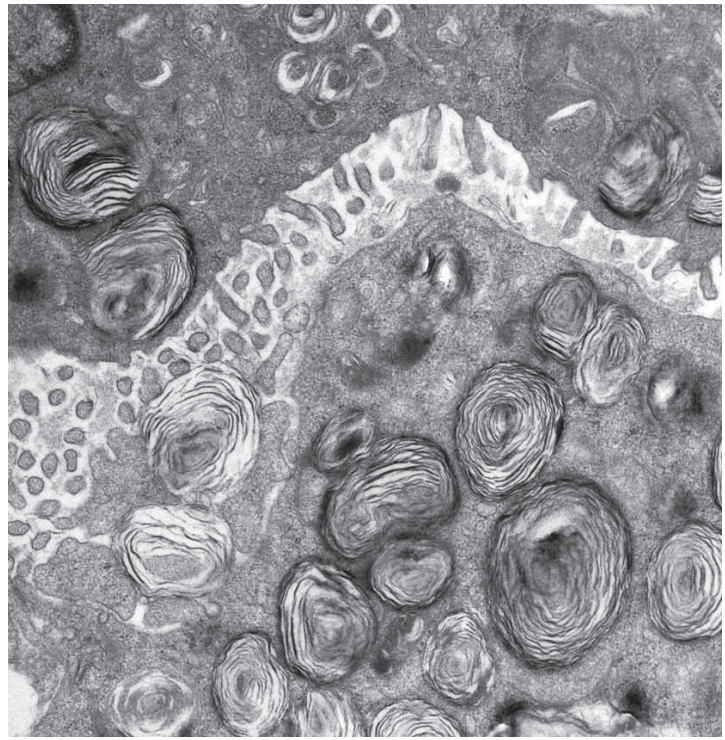
• Exosomes in the progression of inflammation in acute pancreatitis

We have developed experimental models of acute pancreatitis to evaluate the involvement of exosomes and extracellular vesicles in cell signalling between the pancreas and lung during the inflammatory response to pancreatic damage. We have demonstrated that, in addition to soluble mediators, there are several populations of exosomes released by the pancreas and liver that trigger the inflammatory activation of lung macrophages in severe forms of the disease. Analysis of the content of these exosomes allows us to design different strategies focused on controlling their effects in order to limit the progression of inflammation during severe acute pancreatitis.

• Cell therapy for the treatment of pulmonary diseases

We have developed a cell therapy based on the alveolar type II cells transplantation to treat idiopathic pulmonary fibrosis. We evaluated this therapy in patients affected with idiopathic pulmonary fibrosis and our results showed that this therapy was safe and able to slow down the disease progression. In an animal model of pulmonary fibrosis, we showed that this cell therapy recovered different proteins of pulmonary surfactant improving their lung capacity.

At present, our research is focused on the mechanisms on how alveolar type II cells are able to induce changes in the lung microenvironment as well as to induce the regeneration of fibrotic lung. The analysis of these mechanisms will allow us to improve this therapy not only for pulmonary fibrosis but also for other lung diseases.



Department of Neurochemistry and Neuropharmacology

Molecular Neuropharmacology

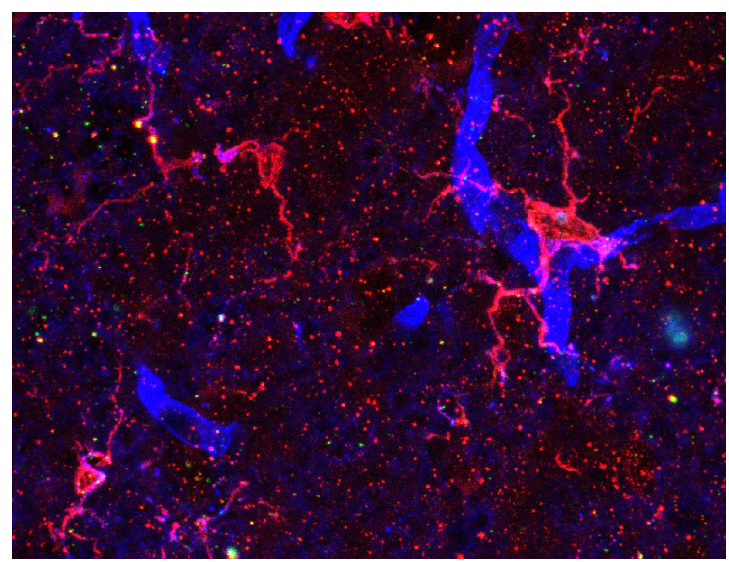
Guadalupe Mengod (CSIC Professor research)
Roser Cortés Colomé (Research scientist)
Mª Teresa Vilaró Comas (Tenured scientist)
Susana Muñoz Morales (Technician CIBERNED)
Doga Tuna (BSc student University of Bilkent, Turkey)
Sena Ferah (BSc student University of Canakkale Onsekiz Mart, Turkey)

Multiple sclerosis is a degenerative disease of the central nervous system that mainly affects young adults, especially women. It is a chronic inflammatory disease characterized by damage to the axons and a loss of myelin from neurons in the brain and spinal cord. This occurs as a result of infiltration by white blood cells (lymphocytes and macrophages) and results in the loss of neurological functions. To find new therapies, researchers must understand how this inflammation works.

The Molecular Neuropharmacology group focuses its work on the analysis of phosphodiesterases, enzymes involved in neuroinflammation. We use cell lines and primary cultures of macrophages, as well as a multiple sclerosis model in mice, experimental autoimmune encephalomyelitis (EAE), to find new therapeutic targets to treat this disease. Greater knowledge of the metabolic pathways involved and their alterations will help us identify new drugs capable of modifying the progression of the disease.

We have previously observed that some phosphodiesterases (enzymes that degrade phosphodiester bond in intracellular messengers, cyclic AMP and/or cyclic GMP) involved in neuroinflammation are expressed differently according to the sex of the animals. We observed a significant reduction of clinical symptoms when mice with EAE are treated chronically with an inhibitor of phosphodiesterase 7, an enzyme specific for cAMP. In the spinal cord of these treated mice, changes in the messenger RNA levels of some phosphodiesterases were seen, suggesting a potential treatment for this disease.

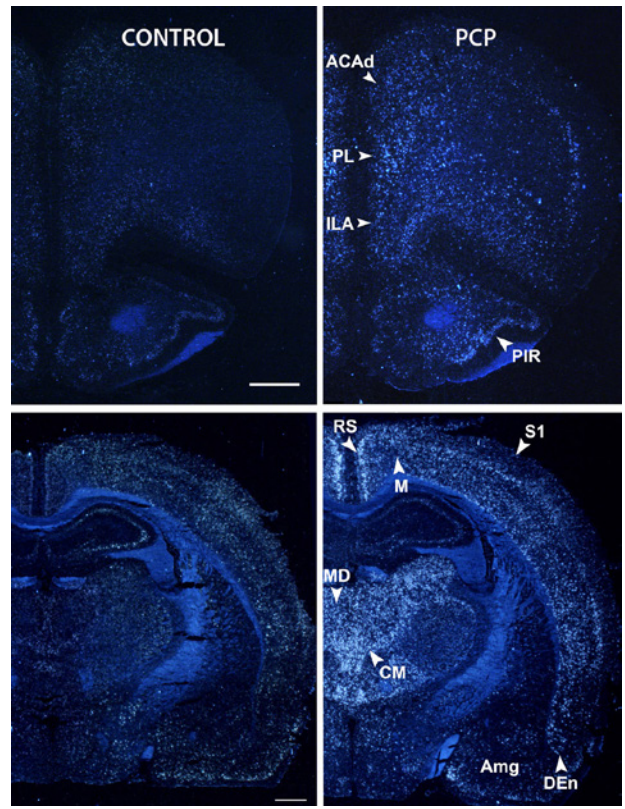
Our research group studies the involvement of the cAMP cascade in the polarization of microglia and macrophages toward anti- or pro-inflammatory phenotypes (M1 or M2 respectively) both in cell culture -cell lines and primary cultures- and in the CNS of EAE mice. By using different cAMP analogs we have been able to study the influence of cAMP in the polarization of macrophages toward different M2 populations in both macrophage cell lines and primary cultures.

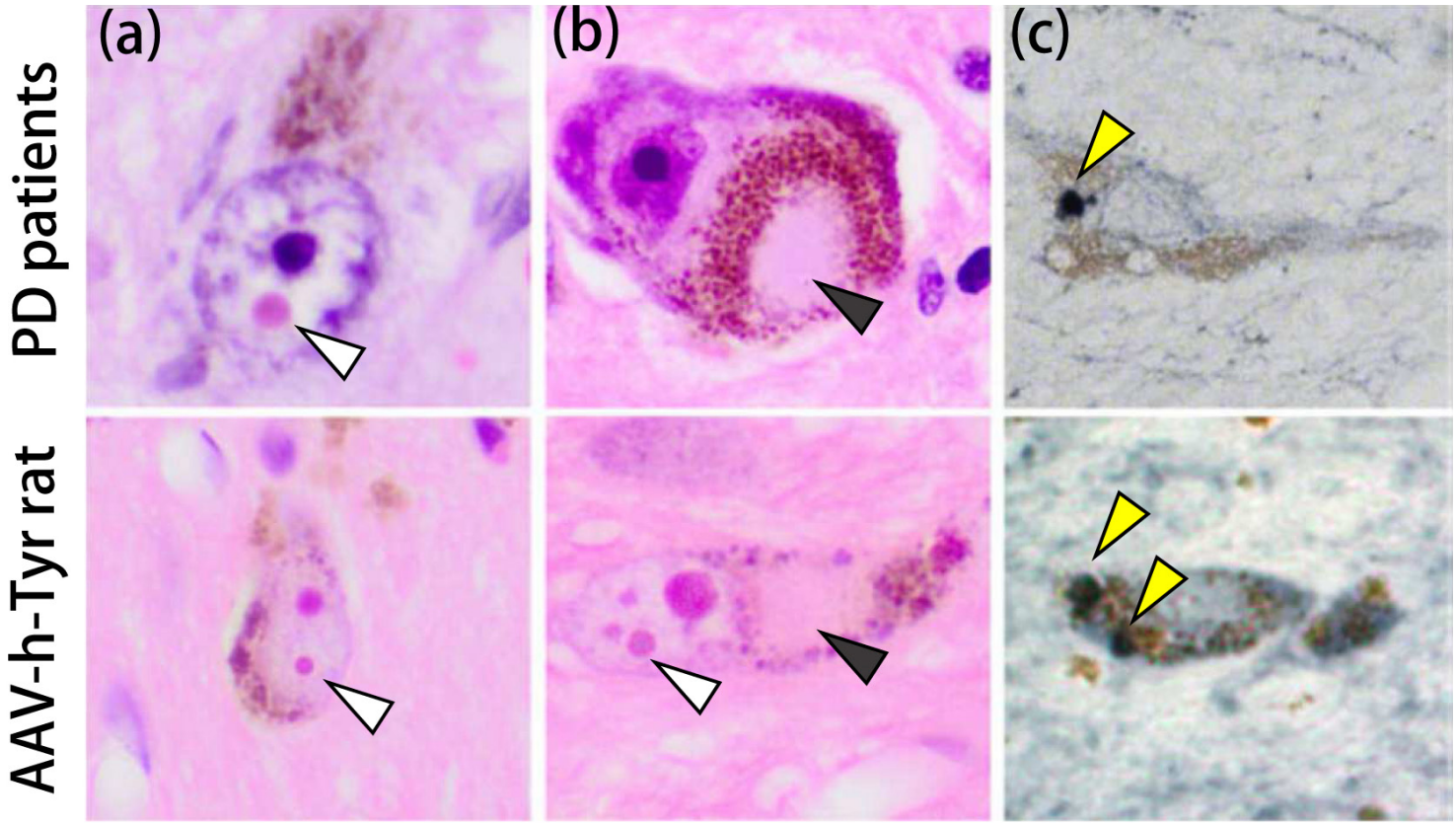


Systems Neuropharmacology

Francesc Artigas Pérez (PI, CSIC Professor researcher)
Analía Bortolozzi Biassoni (Tenured reasercher)
Anna Castañé Forn (Researcher)
Noemí Santana Ramos (Researcher CIBERSAM)
Maurizio RigaPostdoctoral (researcher IDIBAPS)
Mireia Tarrés Gatius (PhD student AGAUR CSIC/IDIBAPS)
Rubén Pavía Collado (PhD student IDIBAPS)
Elena López Terrones (PhD student FPI)
Lluís Miquel Rio (PhD student IDIBAPS)
Sharon Manashirov (Collaborating researcher (mi-CURE&Weizmann Institute of Scienceen, Rehovot Israel))
Leticia Campa Montobbio (Specialized technician in HPLC)
Verónica Paz Silva (Technician CIBERSAM)
Raquel Rodríguez Aller (MSc student)
Unai Sarriés Serrano (MSc in Neuroscience student)
Carla Orta De Palau (Undergraduate student Lestonnac School of Barcelona)
María Jaramillo Muñumer (R+D Administration and management CIBERSAM)

The Systems Neuropharmacology group examines the brain circuits and neuronal elements involved in the physiopathology and treatment of major depression, schizophrenia and Parkinson disease. It also explores neurotransmission processes and brain physiology in genetic and pharmacological models of neurological and psychiatric disorders, in order to identify new therapeutic targets. The group is internationally recognized for their contributions to the Neuropsychopharmacology field, which have helped to improve treatments for major depression. Likewise, the group has also examined the involvement of thalamo-cortical circuits in the pathophysiology and treatment of psychotic disorders, including schizophrenia, a research line contributing to the identification and development of antipsychotic drugs. The groups has also pioneered the use of oligonucleotide strategies to study the pathophysiology of major depression and to develop fast-acting antidepressant treatments, overcoming the limitations of current antidepressant drugs, an approach also currently focused on the study of Parkinson's disease. Along these lines, in 2019 the group has completed a series of studies, including, among others.





1. Development of a mouse model of depression based on the RNAi-induced knockdown of astroglial glutamate transporters, together with the neurochemical and electrophysiological characterization of the neurobiological background in different brain areas.

2. Study of the antidepressant-like actions of the siRNA-induced selective reduction of the expression of the K+ channel TASK-3 in serotonergic and noradrenergic neurons of the brainstem.

3. Study of the actions of the fast-acting antidepressant drug ketamine on the activity of thalamic and cortical neurons, as well as in brain oscillatory activity, in order to characterize the brain circuits involved in its psychotic-like and antidepressant actions.

Ongoing studies are focused on the study of the role of α-synuclein in the control of monoaminergic activity, the neurobiological mechanisms involved in the antidepressant actions of ketamine and the role of glutamate-serotonin interactions in antidepressant mechanisms.

SCIENTIFIC AND TECHNICAL FACILITIES

Microscopy and Histology

Microscopy Unit

The IIBB imaging facility provides services and training to researchers from the IIBB, CSIC, Clinical Campus, and other public or private research institutes on microscopy and image analysis. This facility includes a set of state-of-the-art equipment and techniques to perform the experiments requested by the different research groups. It provides technical assistance from the design of experiments to the analysis of the results obtained.

In 2019, the IIBB's microscopy service provided 2010 hours of service, of which 137 hours to users outside the center.

In November 2019, a Spinning Disk microscope was acquired from ANDOR (Oxford Instruments) with FEDER, CSIC and IIBB funding. This microscope allows to perform Live Imaging experiments and advanced microscopy techniques such as FRET, FRAP and photoactivation, among others.

Staff/contact:
- PI of the Facility: Joan Serratosa Serdà.
- PI of Confocal Microscopy: Ramón Trullàs Oliva.
- PI of Estereological microscope: Roser Cortés.

FEDER
Fondo Europeo de Desarrollo Regional

Services offered:
- Design of experiments related to optical microscopy
- Image acquisition on different equipments.
- Performing advanced microscopy techniques (live imaging...).
- Training in the use of equipment.
- Image processing and analysis.
- Interpretation and presentation of data obtained for scientific papers, conferences, dissemination...

Applications:
- Wide-Field microscopy (bright field, dark field, phase contrast, epifluorescence)
- Confocal microscopy with laser scanning
- Confocal microscopy with spin disk
- Stereology
- In vivo experiments with live cells
- Image analysis and image processing

Equipment:
- Vertical direct fluorescence Nikon Eclipse E 1000 microscope
- Inverted fluorescence microscope Olympus IX70
- Vertical light microscope Zeiss Axioplan
- Vertical direct fluorescence microscope Olympus BX51 for stereology
- Inverted fluorescence microscope Leica DMI 4000B
- Light macroscope Wild M420
- Vertical confocal microscope Leica TCS SPE
- Andor Dragonfly Spinning disk

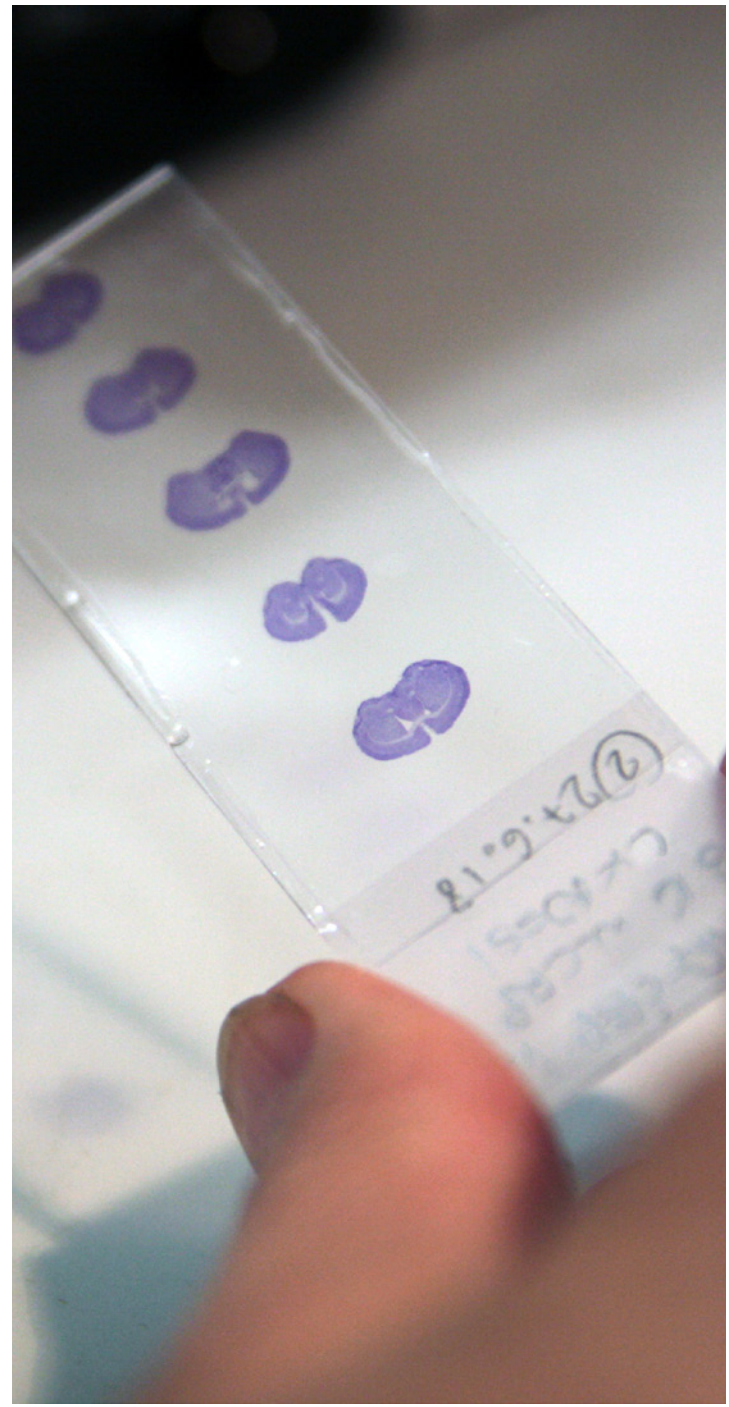
Histology Unit

The Histology Unit offers the possibility to prepare tissue samples using different techniques. It provides service and training to scientific and technical personnel of the IIBB, but it is also open to external users.

Staff/Contact:
PI of the Facility: Roser Cortés Colomé.
Technician: Luís Ignacio Sánchez López

Techniques and Equipment:
Tissue embedding in paraffin:
- Programmable embedding station Shandon Citadel 1000
- Wax dispenser Kunz
- Cold plate Kunz

Tissue Sectioning:
- Leica VT 1200S vibratome (for fresh tissue)
- Microtome-cryostat Microm HM500 (for frozen tissue)
- Microtome-cryostat Microm HM550 (for frozen tissue)
- Microtome Leica RM 2155 (for paraffin embedded tissue)



Tissue culture

The Tissue Culture Facility of the IIBB, located in the seventh floor, is a Biosafety II laboratory used exclusively by the research groups of the IIBB. It is equipped with the basic devices necessary to obtain and maintain cell cultures in a laboratory: biological safety cabinets, CO_2 incubators, centrifuges, a water bath, inverted microscopes, a fluorescence microscope connected to a camera, a cell counter and an autoclave. In addition, an anoxic work station and a hypoxia incubador are available for hypoxia/anoxia experiments. A gas station, located outside the laboratory, is responsible for the supply of the different gases needed in the laboratory: CO_2, N_2 and carbogen. Users work with primary cultures and cell lines from human and animal origin.

Albert Parull, a technician is in charge of the daily maintenance of the laboratory: supervision of gases levels, proper functioning of the incubators and laminar flow cabins, appropriate waste disposal and control of the supplies. Annual maintenance of the devices is performed by external specialized companies.

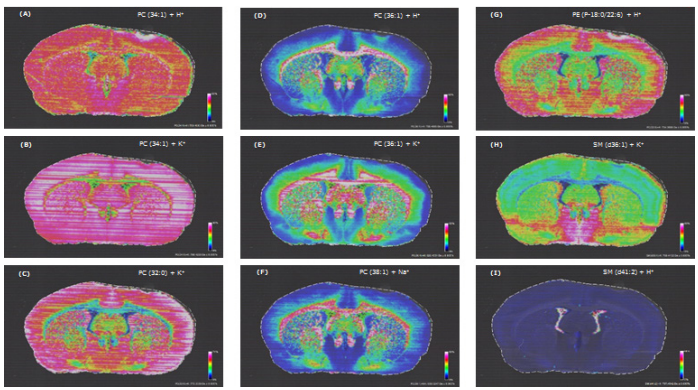
The laboratory also has a scientific supervisor. Dr Valérie Petegnief is responsible for supervising the technician's work, takes care of the appropriate use of the laboratory and cares for users' needs. The number of users is around 35.

Proteomics

CSIC Proteomics Facility providing technology and expertise for large-scale quantitative and qualitative analysis of proteomes as well as for the identification and quantification of target peptides and proteins. The Proteomics Facility also provides scientific and technical advising and analytical services on peptide and protein characterization to external public and private research groups.

The laboratory occupies 90 m^2 and houses four mass spectrometers, several conventional and nanocapillar liquid chromatographic systems, an automatic digestor, a preparative IEF system, and the necessary infrastructure to perform small and large 2D gels and for image acquisition and analysis. It also has all the common laboratory gear required to perform its tasks (centrifuges, freezers, etc.).

Common tasks are related with the identification of biomarkers in biological fluid, cells and tissues, often in relation to pathological states, using 2D-PAGE or capillary chromatography for isolation and mass spectrometry for characterization. In addition to proteomics-focused applications, some clients are using the available infrastructure for the analysis of other bioorganic compounds in areas such as environmental and clinical research and metabolomics



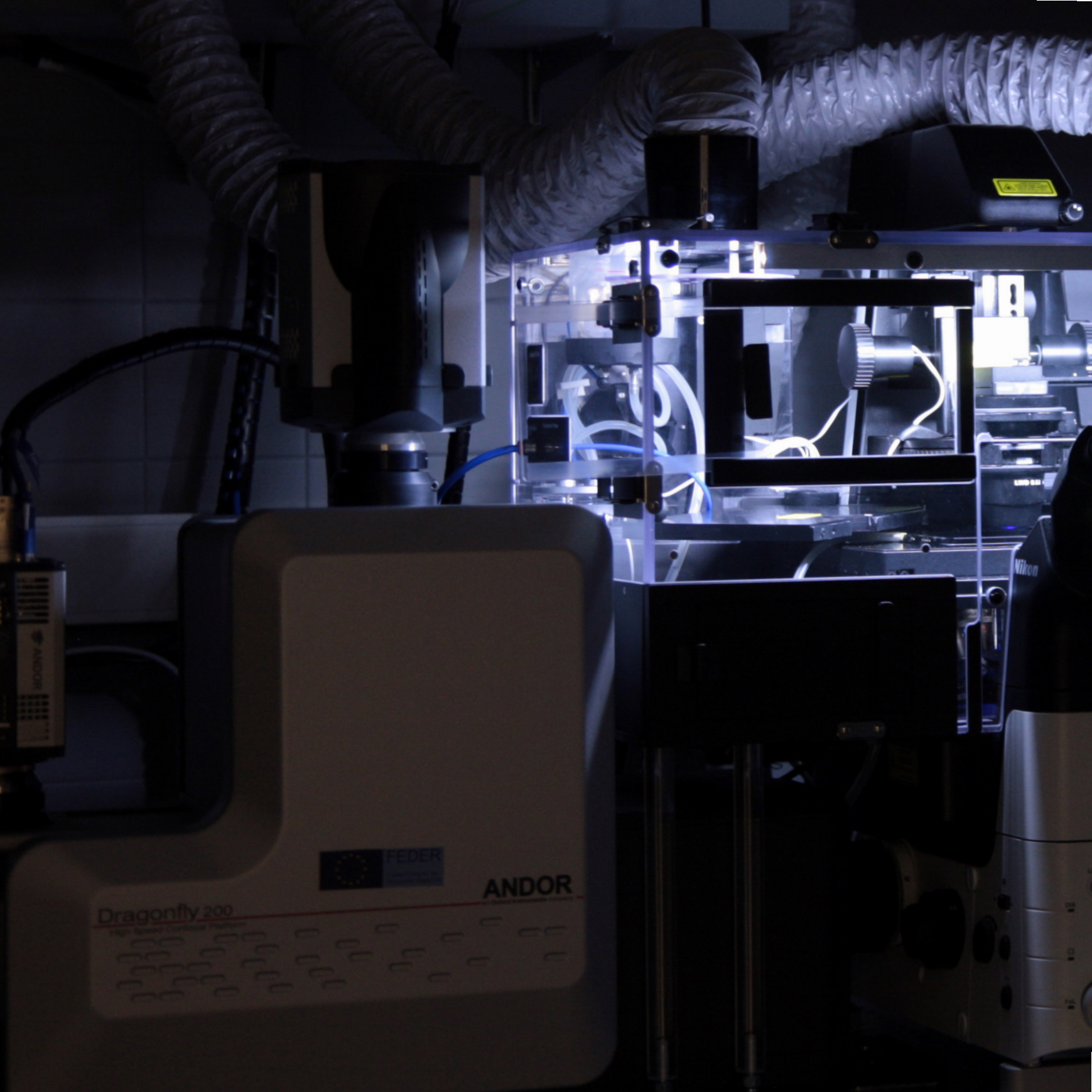
IMS images showing pattern distribution corresponding to assigned lipids of different subclasses.

This IIBB Facility and the IIBB Biological Mass Spectrometry and Proteomics Research Unit are currently integrated in the CSIC/UAB Proteomics Laboratory (LP-CSIC/UAB).

Our services include:

- Molecular weight analysis by MS-MALDI TOF and electrospray-MS
- Protein identification by peptide mass fingerprinting
- Protein identification by tandem mass spectrometry (MS/MS) using nESI-MS/MS and LC-MS/MS
- De novo sequencing
- Gel electrophoresis (1D and 2D-PAGE) and Differential In Gel Electrophoresis (DIGE)
- Protein and peptide quantification using isotopic labeling (iTRAQ and TMT) and high resolution mass spectrometry
- PTM characterization
- Bioinformatics

Since 2012, the facility holds an ISO-9001 certification (Currently, ISO-9001:2015). Management of the analytical protocols, of the internal and external personnel, as well as the interaction with customers and suppliers is described in the documents associated to this Quality management system certification.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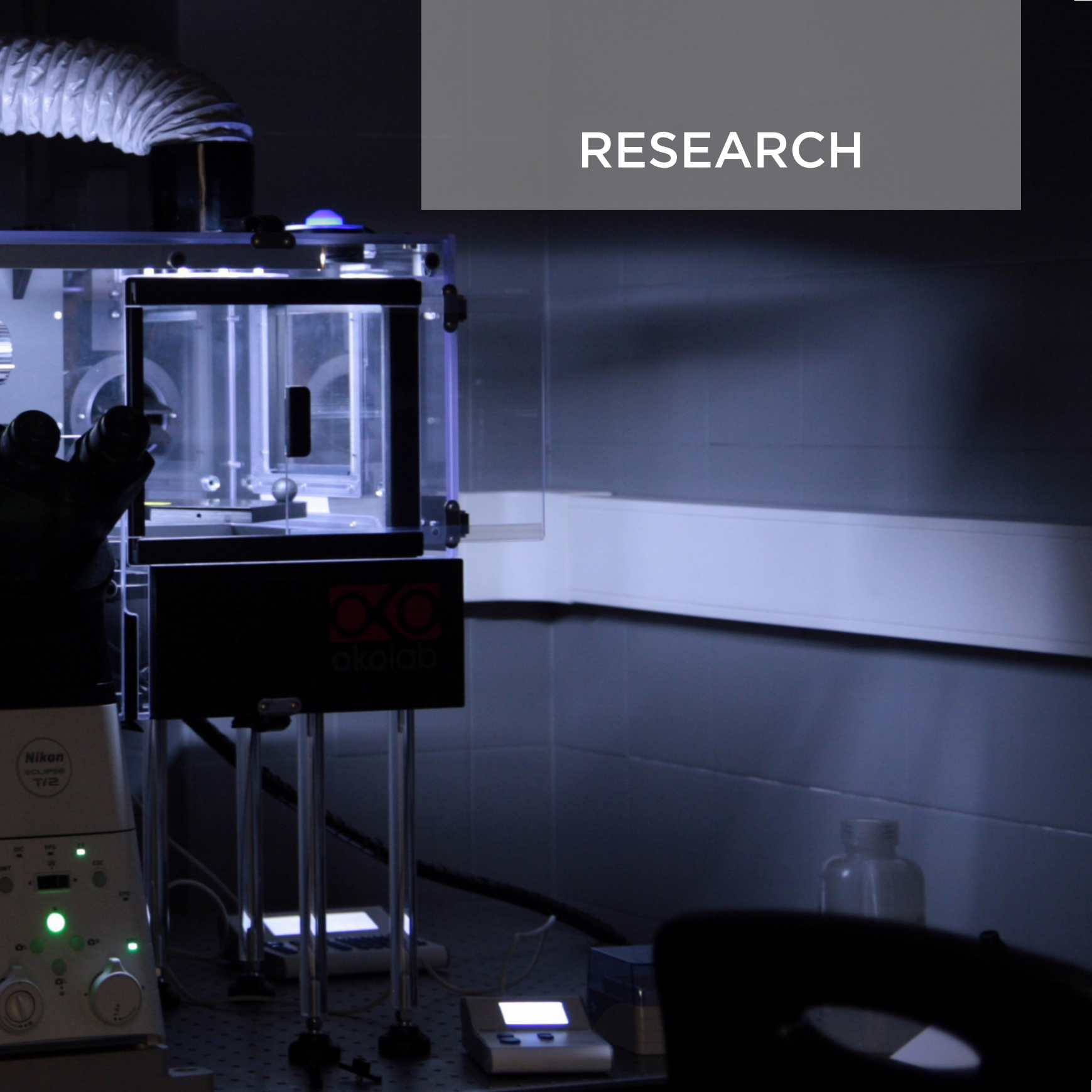
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TRANSFER OF KNOWLEDGE

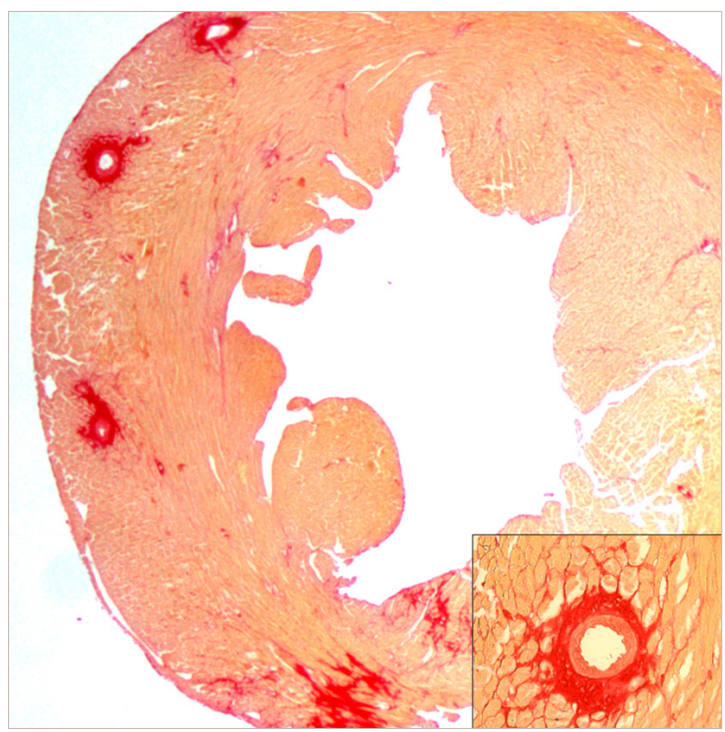
Patents and Licenses

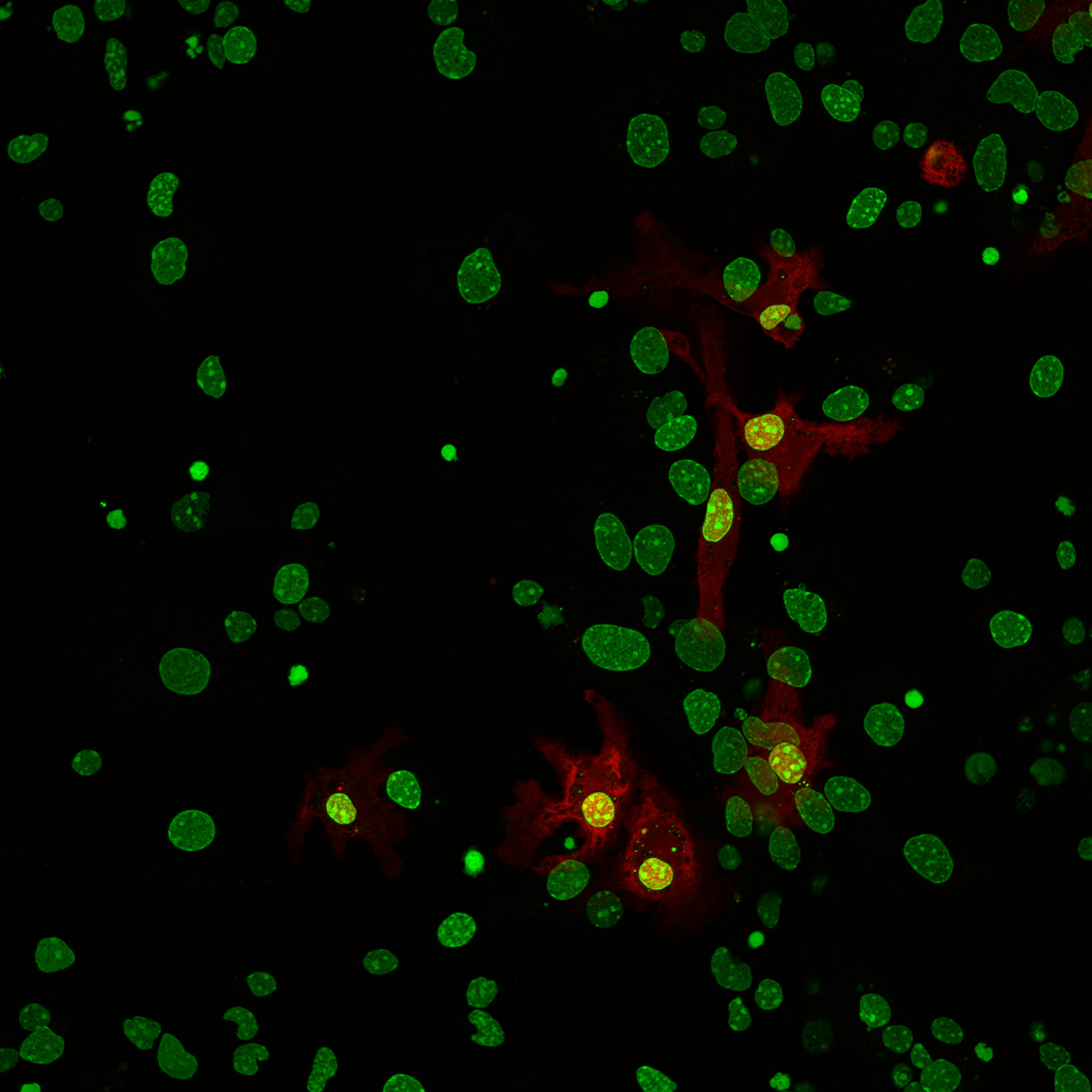
1. **Cañes L**, Rodríguez C, **Martínez J**. *Use of Tyrosine Hydroxylase Inhibitors for the Treatment of Aortic Aneurysm*. Barcelona (Spain): Hospital Sant Pau. (*Patent*)

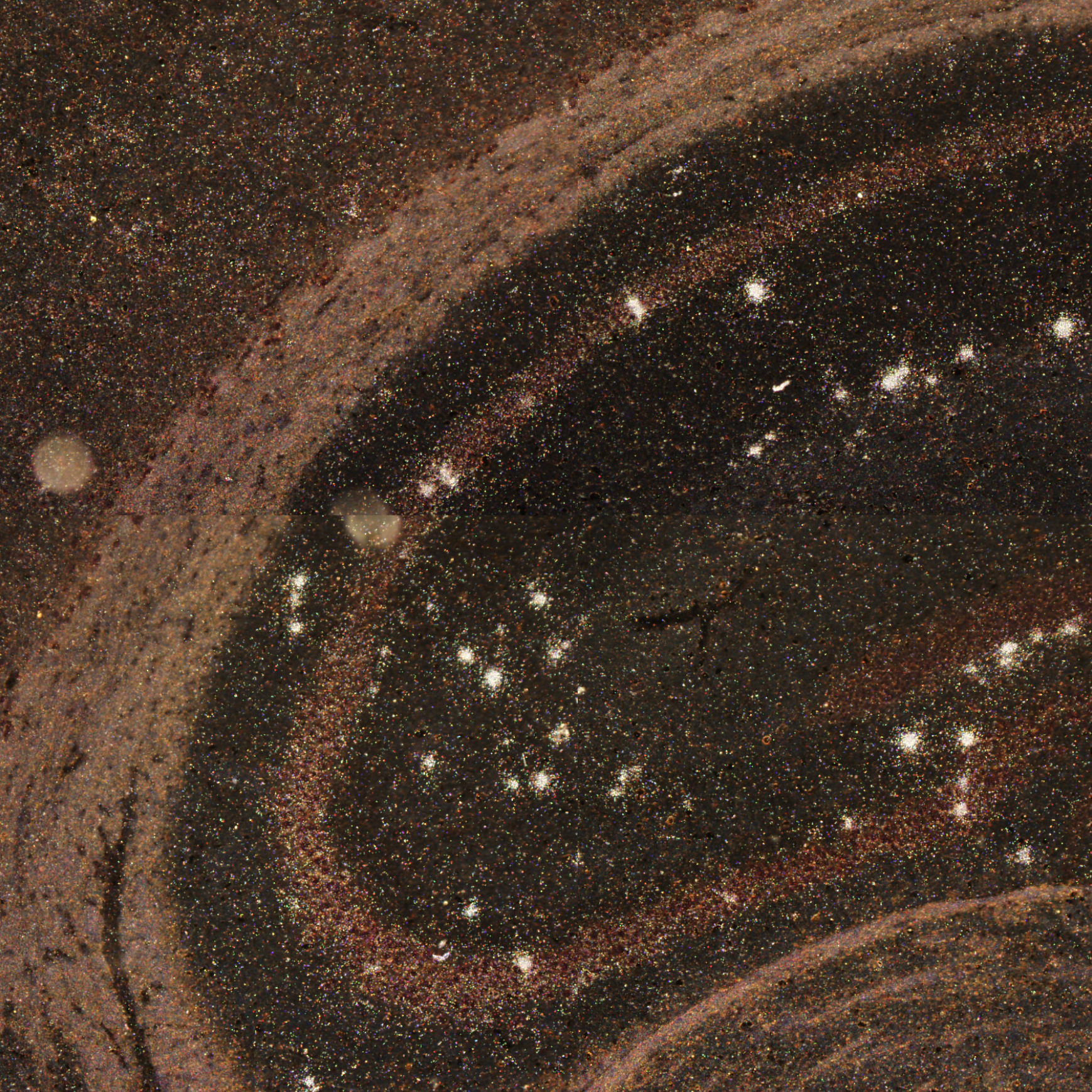
2. **Llorente V**. *Vascular Cholesterol Inhibitors and Use Thereof*. Barcelona (Spain): IPROTEOS. (*Licensed patent*)

3. Rodríguez C, **Martínez J**, **Navas M**, Galan M. *Unspecific Peroxygenase Enzyme Variants for Selective Fatty Acid Epoxidation or Hydroxylation*. Barcelona (Spain): Hospital Sant Pau. (*Priority patent pending*)

4. **Rosello J**, **Folch E**, **Panisello R**. *Polyethylene Glycol for Use in The Prevention of Abdominal Inflammatory Diseases and/or Associated Diseases*. Lissieu (France): Marc Net. (*Priority patent pending*)







FUNDING

ACTIVE COMPETITIVE PROJECTS

1. "¿Están implicados los cambios de la/los microglía/macrófagos en los efectos beneficiosos de los inhibidores de PDEs del AMPc en la EAE crónica?". FIS2015 (PI15/00148). Funded by Instituto de Salud Carlos III. 2016-2019. Principal Investigator: Mengod G.

2. "Actuación sobre el eje sirtuina-1/catepsina como terapia antiinflamatoria en esteatohepatitis no alcohólica y obesidad." FIS2016 (PI16/00930). Funded by Instituto de Salud Carlos III. 2017-2020. Principal Investigator: Marí M.

3. "Alteraciones de la corteza infralímbica en depresión: mecanismo de acción de nuevas estrategias antidepresivas" PN2015 (SAF2015-68346-P). Funded by Ministerio Ministerio de Ciencia e Innovación. 2016-2019. Principal Investigator: Artigas F.

4. "Anàlisi i control del ritme cardiac (ANCORA)". AGAUR (2017SGR01769). Funded by Generalitat de Catalunya. 2018-2020. Principal Investigato: Hove L.

5. "Bioenergetic remodeling in the pathophysiology and treatment of non-alcoholic fatty liver disease". Horizon 2020 (H2020-MSCA-ITN-ETN/2015). Funded by European Union. 2017-2020. Principal Investigator: Roselló J.

6. "Búsqueda de nuevas indicaciones terapeúticas en el ámbito de enfermedades neurodegenerativas y mitocondriales para el compuesto ppar gamma agonista min-102". PN2017 (RTC2017-5867-1). Funded by Ministerio de Ciencia e Innovación. 2018-2020. Principal Investigator: Solà C.

7. "Cambios vasculares durante el envejecimiento y en modelos animales de demencia de origen vascular." PN2015 (DPI2015-64358-C2-2-R) Funded by Ministerio Ministerio de Ciencia e Innovación. 2016-2019. Principal Investigator: Justicia C.

8. "Dany de la barrera en l'hemorràgia subracnoïdal: rellèvancia clínica, paper de la hiperglicèmia i efecte de la potenciació de mecanismos antioxidants endògens. Un estudi traslacional." La Marató TV3 (OTR04076). Funded by Fundació Marató de TV3. 2018-2021. Principal Investigator: Justicia C.

9. "Desarrollo de una terapia innovadora para el tratamiento de la arterioesclerosis mediante la inhibición de la acumulación vascular de colesterol." PN2016 (RTC2016-5078-1). Funded by Ministerio Ministerio de Ciencia e Innovación. 2016-2019. Principal Investigator: Llorente-Cortés V.

10. "El sistema CD200-CD200r1 como diana terapéutica y biomarcador en enfermedades neurológicas: la enfermedad de Parkinson." FIS2015 (PI15/00033). Funded by Instituto de Salud Carlos III. 2016-2019. Principal Investigator: Solà C.

11. "Els receptors d'adenosina com a nova diana per al tractament de la fibril·lació auricular: biomarcadors, estratificació del risc cardiovascular i teràpia." La Marató TV3 (OTR00700 (20152030)). Funded by Fundació Marató de TV3. 2016-2019. Principal Investigator: Hove L.

12. "ER stress-mitochondrial cholesterol axis in obesity-associated insulin resistance." Fundación BBVA 2017 (OTR04128). Funded by Fundación BBVA. 2018-2021. Principal Investigator: Fernández-Checa JC.

13. "Estudio de la epóxido hidrolasa soluble como nueva diana farmacológica para la enfermedad de Alzheimer: modulación de las vías de inflamación y proteólisis." PN2016 (SAF2016-77703-C2-2-R). Funded by Ministerio de Ciencia e Innovación. 2016-2020. Principal Investigator: Sanfeliu C.

14. “Exosomas como mediadores de la progresión sistemática en la pancreatitis aguda. papel fisiopatológico y potencial como marcadores pronóstico.” FIS2016 (PI16/00060). Funded by Instituto de Salud Carlos III. 2017-2019. Principal Investigator: Closa D.

15. “Galectinas, control de la expresión génica y cáncer: de los mecanismos moleculares a la práctica clínica.” FIS2017 (PI17/00199). Funded by Instituto de Salud Carlos III. 2018-2020. Principal Investigator: Navarro P.

16. “Galectinas, control de la expresión génica y cáncer: de los mecanismos moleculares a la práctica clínica.” (201820I130). Funded by Spanish National Research Council (CSIC). 2018-2019. Principal Investigator: Navarro P.

17. “Grup d'Investigació en Biologia Vascular i Coagulopaties”. AGAUR (2017SGR00333). Funded by Generalitat de Catalunya. 2018-2020. Principal Investigator: Martínez J.

18. “Interacció cervell-intestí a l'ictus: disfunció de barrera intestinal i respostes immunes com a dianes terapèutiques” La Marató TV3 (OTR04075). Funded by Fundació Marató de TV3. 2018-2021. Principal Investigator: Planas AM.

19. “Investigación traslacional en esteatohepatitis no alcohólica (EHNA): desarrollo de EHNA en un modelo murino con hígado humanizado para la identificación de dianas terapéuticas.” PN2017 (SAF2017-85877-R). Funded by Ministerio de Ciencia e Innovación. 2018-2020. Principal Investigator: García C.

20. “Leucocitos y microglia en el ictus: papel en la neuroinflamación y la tromboinflamación” PN2017 (SAF2017-87459-R). Funded by Ministerio de Ciencia e Innovación. 2018-2020. Principal Investigator: Planas AM.

21. “Mitofoie gras: non-invasive profiling of mitochondrial function in non-alcoholic fatty liver disease". Horizon 2020 (H2020-MSCA-RISE/0254). Funded by European Union. 2017-2021. Principal Investigator: Roselló J.

22. “Modulación de la función fagocítica de los macrófagos en la fibrosis renal”. PN2015 (SAF2015-67770-R). Funded by Ministerio de Ciencia e Innovación. 2016-2019. Principal Investigator: Hotter G.

23. “Molècules immunoreguladores i miARNs com a dianes terapèutiques en la malaltia coronària i la sindrome coronària aguda.” La Marató TV3 (OTR00701 (20152330)). Funded by Fundació Marató de TV3. 2016-2019. Principal Investigator: Martínez J.

24. “Neuroquímica y Neurofarmacología”. AGAUR (2017SGR00717). Funded by Generalitat de Catalunya. 2018-2020. Principal Investigator: Artigas F.

25. “Nuevas estrategias terapéuticas en el tratamiento de la lesión cerebral traumática inhibiendo la activación del complemento por la vía de las lectinas.” PEICTI 2013-2016 (PCIN2017-035). Funded by Ministerio de Ciencia e Innovación. 2017-2020. Principal Investigator: Planas AM.

26. “Papel de colesterol mitocondrial en carcinoma hepatocelular.” PN2016 (SAF2015-73579-JIN). Funded by Ministerio de Ciencia e Innovación. 2017-2020. Principal Investigator: Ribas V.

27. “Paper dels macròfags i fibroblasts residents a la remodelació miocàrdica i la regeneració tissular després de l'infart de miocardi: contribució del sistema GAS6-TAM.” La Marató TV3 (OTR01767 (201530.30.31.32)). Funded by Fundació Marató de TV3. 2016-2019. Principal Investigator: García de Frutos P.

28. “Plataforma de recursos biomoleculares prb3.” RETICS (PT17/0019/0008). Funded by Instituto de Salud Carlos III. 2018-2020. Principal Investigator: Abian J.

29. “Polimorfismos genéticos comunes: asociando variantes de riesgo a defectos electrofisiológicos y moleculares” PN2017 (SAF2017-88019-C3-1-R). Funded by Ministerio de Ciencia e Innovación. 2018-2020. Principal Investigator: Hove L.

30. “Polimorfismos genéticos comunes: asociando variantes de riesgo a defectos electrofisiológicos y moleculares” PN2017 (SAF2017-88019-C3-1-R). Funded by Ministerio de Ciencia e Innovación. 2018-2020. Principal Investigator: Hove L.

31. “Regulación Mitocondrial de la Muerte Celular”. AGAUR (2017SGR01112). Funded by Generalitat de Catalunya. 2018-2020. Principal Investigator: Fernández-Checa JC.

32. “Regulación terapéutica de la transición EMT/MET y la quimio resistencia en la enfermedad hepática crónica”. PN2015 (SAF2015-66515-R). Funded by Ministerio de Ciencia e Innovación. 2016-2019. Principal Investigator: Morales A & García de Frutos P.

33. “Regulación y contribución de HIF-1 y STARD1 a la esteatohepatitis y carcinoma hepatocelular.” PN2015 (SAF2015-69944-R). Funded by Ministerio Ministerio de Ciencia e Innovación. 2016-2019. Principal Investigator: Fernández-Checa JC.

34. “Replicación y transcripción del ADN mitocondrial como mecanismo central de la secuencia patológica que conduce a la neurodegeneración.” PN2017 (SAF2017-89791-R). Funded by Ministerio de Ciencia e Innovación. 2018-2020. Principal Investigator: Trullas R.

35. “Validación de las vías del retículo endoplásmico como una nueva diana para restaurar la homeostasis de la proteína alfa-sinucleína. Implicación en la enfermedad de Parkinson.” (201820l077). Funded by Spanish National Research Council (CSIC). 2018-2019. Principal Investigator: Bortolozzi A.

36. “Valor diagnòstic, pronòstic i terapèutic del receptor LRP1 a la malaltia cardiovascular.” La Marató TV3 (OTR00700 (20152110)). Funded by Fundació Marató de TV3. 2016-2019. Principal Investigator: Llorente-Cortés V.

NEW COMPETITIVE PROJECTS

1. "El receptor nuclear NOR-1 en el remodelado vascular asociado a la arteriosclerosis y al aneurisma de la aorta abdominal." (OTR05151). Funded by Fundación Española de Arteriosclerosis (FEA). 2019-2020. Principal Investigator: Martínez J.

2. "ENdoThelial macRophage Alliance In Neuroinflammation (Acrónimo ENTRAIN)." Horizon 2020 (H2020-MSCA-ITN-ETN/0517). Funded by European Union. 2019-2023. Principal Investigator: Planas AM.

3. "Identificación de nuevas dianas terapéuticas para el tratamiento del carcinoma hepatocelular análisis de la función de la catepsina D en el eje inflamación-fibrosis-cáncer." VIII PEICTI 2017-2020 (RTI2018-097475-A-I00). Funded by Ministerio de Ciencia e Innovación. 2019-2021. Principal Investigator: Moles A.

4. "Interacción autofagia-inflamasoma como diana terapéutica en la enfermedad de Alzheimer." VIII PEICTI 2017-2020 (RTI2018-095572-B-I00). Funded by Ministerio de Ciencia e Innovación. 2019-2022. Principal Investigator: Colell A.

5. "La conexión entre el LRPI1 cardiaco y los niveles circulantes del péptido natriurético ANP como fuente de nuevas oportunidades diagnósticas y terapeúticas en diabetes tipo 2." FIS2018 (PI18/01584). Funded by Instituto de Salud Carlos III. 2019-2021. Principal Investigator: Llorente-Cortés V.

6. "Mecanismos que involucran a los receptores NR4A y a LOX en la calcificación cardiovascular estableciendo las bases para nuevas estrategias terapéuticas." VIII PEICTI 2017-2020 (RTI2018-094727-B-I00). Funded by Ministerio de Ciencia e Innovación. 2019-2021. Principal Investigator: Martínez J.

7. "Terapias moleculares dirigidas al microambiente en fibrosis y cáncer." VIII PEICTI 2017-2020 (RTI2018-095672-B-I00). Funded by Ministerio de Ciencia e Innovación. 2019-2021. Principal Investigator: Morales A & García de Frutos P.

ACTIVE RESEARCH CONTRACTS

1. "Contrato de investigación y desarrollo entre la agencia estatal CSIC y Freeox Biotech SL." (50506180007): Participating Company: Freeox Biotech S.L. 2018-2019. Principal Investigator: Planas AM.

2. "CSIC, IIBB and Institute Georges Lopez collaboration agreement between Institut Georges Lopez and CSIC." (50506130019). Participating Company: Institute Georges Lopez. 2013-2021. Principal Investigator: Folch E.

3. "Servicio para la cuantificación de antígenos en la producción y en la vacuna final de una vacuna de cerdo mediante técnicas proteómicas." (50506180006). Participating Company: Hipra Scientifics S.L.U. 2018-2019 Principal Investigator: Abian J.

NEW RESEARCH CONTRACTS

1. “Acexamato de zinc como agente inductor de la generación de exosomas” (50506190009): Participating Company: Laboratorios Viñas S.A. 2019-2020. Principal Investigator: Closa D.

2. “Desarrollo de un producto de regeneración de tejidos en base a una terapia celular avanzada” (50506190012): Participating Company: XCELL Medical Solutions. 2019-2020. Principal Investigator: Hotter G.

3. “In vivo evaluation of efficacy of proprietary conjugated miRNA.” (50506190005): Participating Company: Micure Therapeutics Ltd. 2019-2020. Principal Investigator: Bortolozzi A.

4. “Characterization of a 57 kda band in a non-reducing sds-page gel by proteomic techniques” (50506190004): Participating Company: Laboratorios Leti S.L. 2019-2019. Principal Investigator: Abian J.

PROJECTS AND CONTRACTS IN OTHER INSTITUTIONS

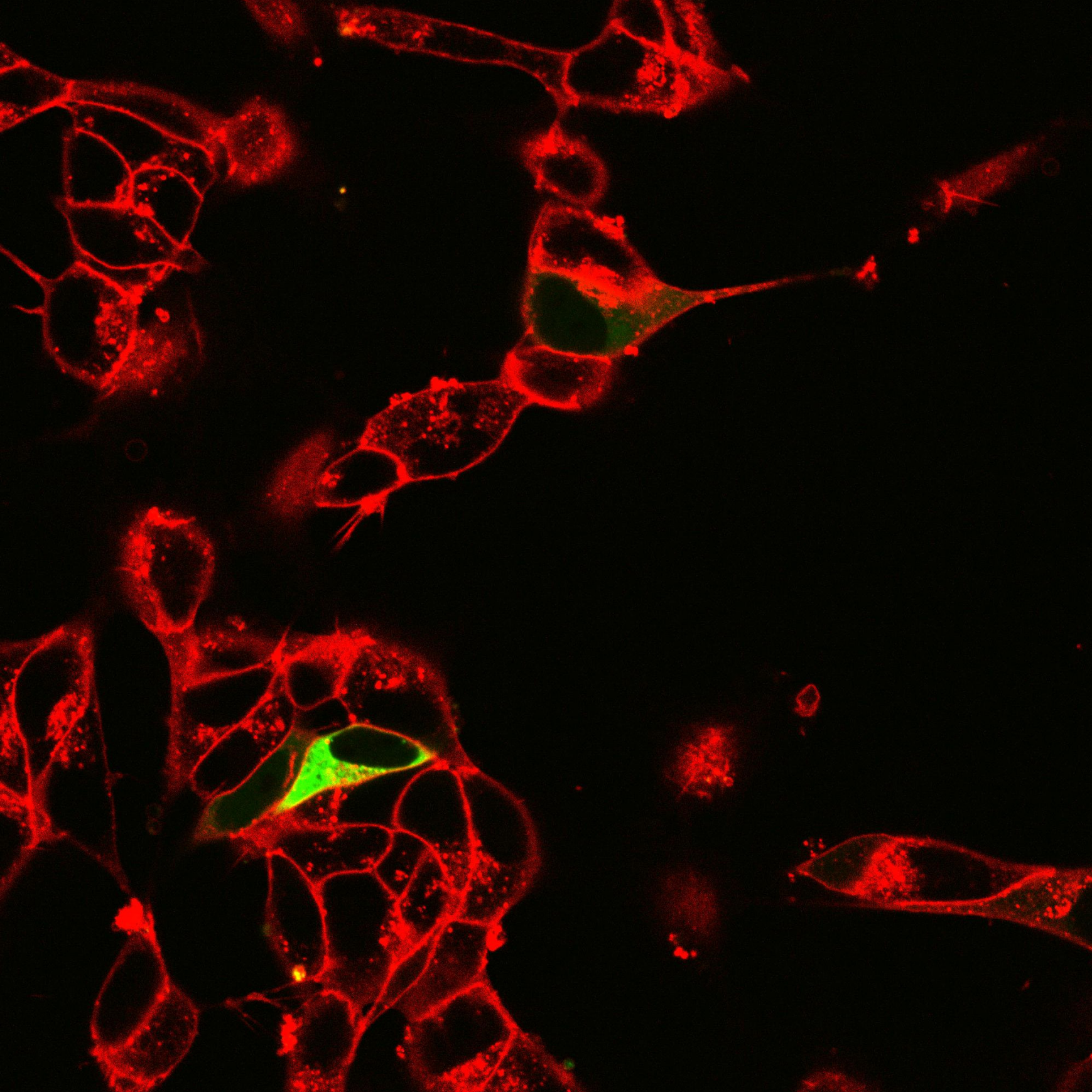
1. “Interacción CB1R-GRP78: ¿un nuevo mecanismo regulador de la actividad neuroprotectora de los cannabinoides?”. 9ª Convocatoria de Proyectos Colaborativos CIBERNED (PI2018/01-4). Funded by: Instituto de Salud Carlos III. 2018-2021. Principal Investigator: Mengod G & Cortés R (CIBERNED).

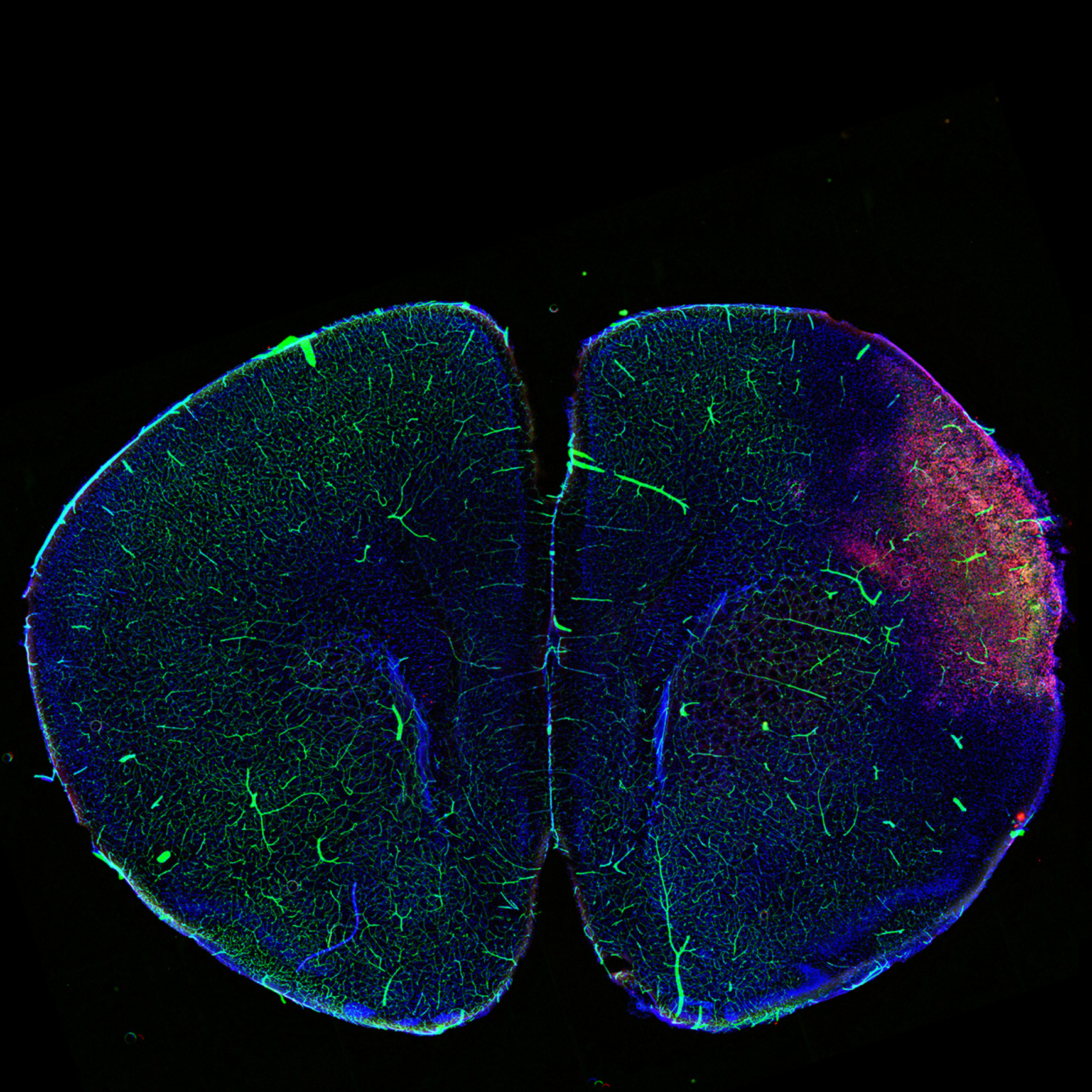
2. “Modulación de circuitos cortico-mesencefálicos y cortico-límbicos por nuevas terapias antidepresivas.” Convocatoria AES 2016. Cofounded by: Instituto de Salud Carlos III & Ministerio de Economía y Competitividad fondos FEDER (PI16/00287). 2017-2020. Principal Investigator: Vilaró T (IDIBAPS).

3. “Nanoparticle delivery system for neurodegenerative disorders”. Euronanomed 5th Call 2014 (AC14/00016). Funded by: European Union and Instituto de Salud Carlos III. 2015-2019. Saura J (PI, University of Barcelona) & Solà C.

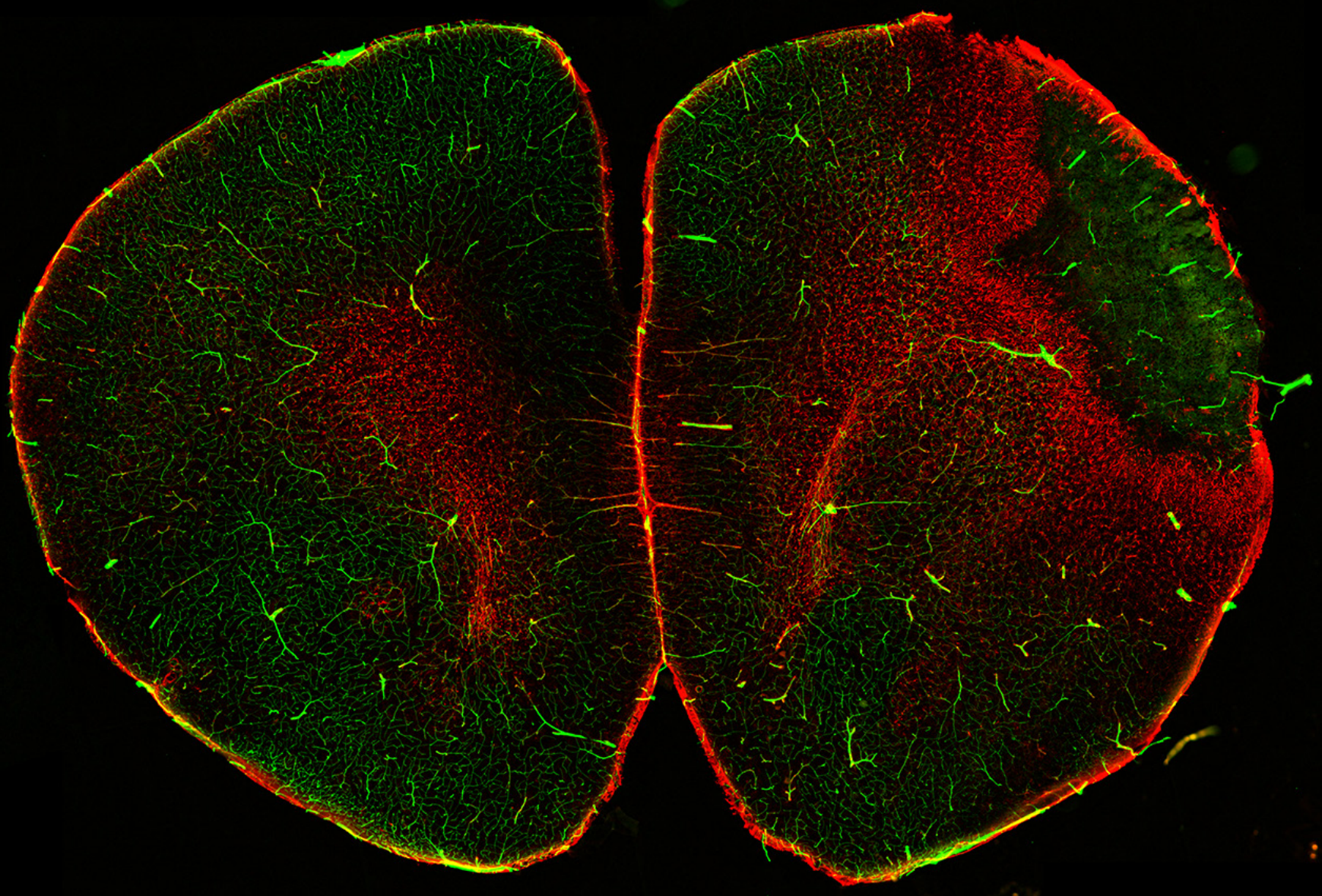
4. “Sinucleinopatías y oligonucleótidos inhibitorios: rol de alfa y gama sinucleínas en la regulación de la función cognitiva.” Programa Estatal de Investigación, Desarrollo e Innovación Orientada a los Retos de la Sociedad (SAF2016-75797-R). 2016-2019. Principal Investigator: Bortolozzi A (IDIBAPS).

5. “Mechanism of action of Lu AF35700: Reversal of PCP-induced disruption of thalamocortical activity and involvement of 5-HT2B receptors.” Participating company: H. Lundbeck A/S. 2017-2019. Principal Investigator: Artigas F (IDIBAPS).





SCIENTIFIC COMMUNICATION



ORAL COMMUNICATIONS

1. **Alarcón D**, **Pavia R** (speaker), **Ferrés A**, **Ruiz E**, **Coppola V**, **Miquel L**, **Paz V**, **Campa L**, **Artigas F**, **Bortolozzi A**. 2019. *Alpha-Synuclein overexpression in mouse raphe nuclei displays neuropsychiatric symptoms of Parkinson's disease. Reversal by conjugated antisense therapy*. VII Laboratorio de Ideas para Jóvenes Investigadores Cibersam. Oviedo, Spain.

2. **Artigas F**, **Ferrés A**, **Fullana N**, **Bortolozzi A**. 2019. *Therapeutic potential of RNAi for the treatment of major depressive disorder*. 7th Mediterranean Neuroscience Conference. Marrakech, Morocco.

3. **Artigas F**. 2019. *Interacción neurona-glía: relevancia en tratamiento de la depresión mayor*. XXII Congreso Nacional de Psiquiatría. Bilbao, Spain.

4. **Artigas F**. 2019. *Investigació Traslacional en Psiquiatria*. VII Congreso de Investigación Biomédica (CIB 2019). Valencia, Spain.

5. **Artigas F**. 2019. *Mechanisms of Antidepressant Response*. 2019 CINP International Meeting. Athens, Greece.

6. **Artigas F**. 2019. *New Insights into the Pathophysiology of Major Depressive Disorder*. 12th International Symposium on Neuropsychiatry & HIV. Badalona, Spain.

7. **Artigas F**. 2019. *Síntomas psiquiátricos en Enfermedad de Parkinson: nuevas estrategias terapéuticas*. XXII Congreso Nacional de Psiquiatría. Bilbao, Spain.

8. Batlle M, Alcarraz A, Sarvari S, Sangüesa G, Meza A, **Cristóbal H**, Castillo N, **García P**, Sitges M, Mont L, Guasch E. 2019. *Axl co-expresa con genes de remodelado hipertrófico en un modelo animal de sobrecarga de presión*. SEC2019 - El congreso de las enfermedades cardiovasculares. Madrid, Spain.

9. **Castañé A** & **Artigas F**. 2019 *Serotonin receptors: Implications for depression and its treatment*. 14th World Congress of Biological Psychiatry. Vancouver, Canada.

10. **Castañé A**, **Artigas F**, **Tarrés-Gatius M** (speaker). 2019. *Rol de la subunidad GluN2C en los efectos psicotomiméticos inducidos por MK-801, PCP y ketamina*. VIII Foro Internacional en Esquizofrenia. Madrid, Spain.

11. **Conde L**, **Ribas V**, Espinosa R, García JJ, **García-Ruiz C** & **Fernández-Checa JC** (speaker). 2019. *Role of Stard1 in cholestatic liver injury*. AASLD Annual Meeting 2019. Boston, USA.

12. **Fernández-Checa JC**. 2019. *Mitochondria, Cholesterol and Liver Diseases*. International Workshop On "Mitochondia, Metabolic Diseases and Diabetes". Rehovot, Israel.

13. **Fernández-Checa JC**. 2019. *Nou model per a l'estudi de les malalties hepàtiques: ratolí amb fetge quimèric humà*. Congreso de la Sociedad Catalana de Digestivo - Curso Básico. Tarragona, Spain.

14. **Fullana N**, Covelo A, **Ruiz E**, **Ferrés A**, Araque A, **Artigas F**, **Bortolozzi A**. 2019. *Short Talk: Regionally-Selective Knockdown of Astroglial Glutamate Transporters in Infralimbic Cortex Increases Local Excitatory Neurotransmission and Evokes a Depressive Phenotype in Mice*. 18th National Meeting of the Spanish Society of Neuroscience. Santiago de Compostela, Spain.

15. **García E**, Aguirre S, Clotet N, **Corpas R**, Slevin M, **Sanfeliu C**. 2019. *Mechanisms of monomeric C Reactive Protein inducing neurodegeneration*. FENS Regional meeting 2019. Belgrade, Serbia.

16. **Garcia P**. 2019. *Coagulation Factors Crosstalk with Endothelium*. European Congress on Thrombosis and Haemostasis 2019. Glasgow, United Kingdom.

17. **López E** (speaker), **Artigas F**, **Celada P**. 2019. *Different responses of piramidal neurons in prelimbic and infralimbic regions of the medial prefrontal cortex to dorsal raphe stimulation*. VII Laboratorio de Ideas para Jóvenes Investigadores Cibersam. Oviedo, Spain.

18. **Navarro P** (speaker), Martínez N, Orozco Ca, Barranco LE, Guerrero PE, Vinaixa J, Dalotto T, Moreno M, Visa L, Iglesias M, Djurec M, Poirier F, Gabius HJ, Oldfield L, Neoptolemos JP, Greenhalf W, Earl J, Carrato A, Costello E, Fernandez ME, Hwang RF, Guerra C, Rabinovich GA. 2019. *Galectin-1 is a novel therapeutic target and diagnostic/prognostic biomarker for pancreatic cancer*. XVI Reunión de la Asociación Española de Pancreatología. Bilbao, Spain.

19. **Navarro P**. 2019. *Cáncer de páncreas: interacción entre tumor y estroma. Papel de Galectina-1*. 1er Simposio Nacional de Investigadores en Cáncer de Páncreas. Zaragoza, Spain.

20. **Navarro P**. *Tumor immune escape in pancreatic cancer: a key role for Galectin-1.* XIII Congreso Sociedad Catalana de Inmunologia. Barcelona, Spain.

21. **Podlesniy P** & **Trullas R**. 2019. *Cerebrospinal fluid mitochondrial DNA in rapid and slow progressive forms Alzheimer's disease*. VII International Congress on Research and Innovation in Neurodegenerative Diseases (CIBERNED). Valencia, Spain.

22. **Podlesniy P**. 2019. *Absolute measurement of gene expression by Selfie-PCR*. BITS 10th Annual World DNA and Genome day. Nanjing, China.

23. **Suñol C**. 2019. *Toxicology through alternative methods that reduce, refine and replace animal use* (*3R principle*). International Conference on Environmental Bioinorganic Chemistry and Toxicology Research (CEBiTOR 2019). Diadema, Brazil.

24. **Trullas R**. 2019. *Brain health and disease in the digital era 2020 & beyond*. IMI Stakeholder Forum 2019. Brussels, Belgium.

25. **Trullas R**. 2019. *Regulation of mitochondrial DNA replication and transcription in neurodegeneration*. VII International Congress on Research and Innovation in Neurodegenerative Diseases (CIBERNED). Valencia, Spain.

POSTER PRESENTATIONS

1. **Alarcón D**, **Pavia R**, **Ferrés A**, **Ruiz E**, **Coppola V**, **Miquel L**, **Artigas F**, **Bortolozzi A**. 2019. *Human Alpha-Synuclein Overexpression in Mouse Raphe Nuclei Induces Parkinson's Disease Pathology. Reversal by Conjugated Antisense Therapy*. 18th National Meeting of the Spanish Society of Neuroscience. Santiago de Compostela, Spain.

2. Amat M, **Celada P**, Jensen A, Plath N, **Artigas F**, Herrik K. 2019. *Modulation of thalamo-cortical activity by the NMDA receptor antagonists ketamine and phencyclidine in the awake freely-moving rat*. Dynamics of the Brain: Temporal Aspects of Computation. Rungstedgaard, Denmark.

3. Cervera A, Otero D, Vila H, González A, Blasco A, Martínez J, Teruel V, **Celada P**, **Artigas F**. 2019. *Ketamine Modifies the Oscillatory Effects of Dorsal Raphe Stimulation in the Infralimbic and Prelimbic Cortex*. 18th National Meeting of the Spanish Society of Neuroscience. Santiago de Compostela, Spain.

4. **Corpas R**, **Clotet N**, **Aguirre S**, García E, Slevin M, Griñán-Ferré C, Galdeano C, Vázquez S, **Suñol C**, Pallàs M, **Sanfeliu C**. 2019. *Mechanisms of neuroprotection of soluble epoxide hydrolase enzyme inhibition in Alzheimer's disease models*. FENS Regional Meeting 2019. Belgrade, Serbia.

5. **Corpas R**, **Solana E**, De la Rosa A, **Sarroca S**, Griñán-Ferré C, Oriol M, Corbella E, **Rodríguez-Farré E**, Viña J, Pallàs M, Bartrés-Faz D, Gómez-Cabrera MC, **Sanfeliu C**. Jornadas Científica CIBERESP 2019. *Long-term physical activity induces brain resilience in middle-aged adults*. Madrid, Spain.

6. **Cucarull B**, **Tutusaus A**, Boix L, Reig M, Bruix J, **Morales A**. 2019. *La Proteína BCL-XL Regula la Resistencia a Regorafenib del Carcinoma Hepatocellular (HCC) Sensibilizando a Miméticos de BH3 en Terapia Experimental*. 44 Congreso de la AEEH (Asociación Española para el Estudio del Hígado). Madrid, Spain.

7. **De Gregorio E**, **Tutusaus A**, **Morales A**, **Marí M**. 2019. *La Ausencia de Linfocitos NKT Agrava la Esteatohepatitis No Alcohólica (EHNA) Experimental En Ratones Macho*. 44 Congreso de la AEEH (Asociación Española para el Estudio del Hígado). Madrid, Spain.

8. **Fucho R**, **Solsona E**, Enrich C, **García-Ruiz C**, **Fernández-Checa JC**. 2019. *THU-264-Transmission electron microscopy reveals dramatic hepatic zonal changes upon chronic alcohol feeding*. 54th Annual meeting of the European Association for the Study of the Liver (EASL). Vienna, Austria.

9. **Fullana N**, Covelo A, Ruiz-Bronchal E, **Ferrés-Coy A**, Araque A, **Artigas F**, **Bortolozzi A**. 2019. *Regionally-Selective Knockdown of Astroglial Glutamate Transporters in Infralimbic Cortex Increases Local Excitatory Neurotransmission and Evokes a Depressive Phenotype in Mice*. 18th National Meeting of the Spanish Society of Neuroscience. Santiago de Compostela, Spain.

10. Hurtado B, Gibert J, Tàssies D, Reverter JC, Méndez R, Malumbres M, **Navarro P**, **García** P. 2019. *Contribution of the mRNA binding protein CPEB4 in platelet biology through translational control*. ECTH 2019 European Congress on Thrombosis and Haemostasis. Glasgow, United Kingdom.

11. Laguna A, Peñuelas N, Romero J, González M, **Miquel L**, Benseny N, Rodríguez B, Cuadros T, Álvarez E, Parent A, Cacho F, Carballo I, Cladera J, **Bortolozzi A**, Vila M. 2019. *Age-dependent neuromelanin accumulation in a novel humanized transgenic mouse model*

for Parkinson's disease and brain aging. Neuroscience 2019 (Society for Neuroscience). Chicago, USA.

12. **Ochoa A**, **Miró-Mur F**, **García de Frutos P**, **Pedragosa J**, **Planas AM**. 2019. *Neutrophil Gas6 expression is involved in neutrophil recognition by microglia for phagocytosis*. 53rd ESCI2019 Annual Scientific Meeting of the European Society for Clinical Investigation. Coimbra, Portugal.

13. **Pavia R**, **Alarcón D**, **Ruiz E**, **Cóppola V**, Revilla R, Montefeltro A, **Artigas F**, **Bortolozzi A**. 2019. *Comparative study for assessment of dopamine neurotransmission and behavioral effects using different models of Parkinson's disease*. 18th National Meeting of the Spanish Society of Neuroscience. Santiago de Compostela, Spain.

14. **Pedragosa J** & **Planas AM**. 2019. *Role of Mannose-Binding Lectin in Neutrophil Infiltration after Traumatic Brain Injury and Brain Ischemia*. 53rd ESCI2019 Annual Scientific Meeting of the European Society for Clinical Investigation. Coimbra, Portugal.

15. **Pedragosa J** & **Planas AM**. 2019. *Role of MBL in Neutrophil Infiltration after TBI*. ERA-NET NEURON Cofund Meeting. Bonn, Germany.

16. **Planas AM** & **Petegnief V**. 2019. *Development of image analysis tools to characterize and classify cultured microglial cells in healthy and pathological conditions*. ySMIN. 3rd young Spanish ESMI Group Meeting. Barcelona, Spain.

17. **Rabaneda N**, Blasco L, **Serratosa J**, **Saura J**, **Solà C**. 2019. *Exposure to parkinsonian neurotoxins inhibits glial cells anti-inflammatory response*. XIV European Meeting on Glial Cells in Health and Disease. Porto, Portugal.

18. **Rabaneda N**, Vidal JM, **Saura J**, **Solà C**. 2019. *Alterations in the mechanisms of control of microglial activation in Parkinson's disease: the CD200-CD200R1 system*. XIV European Meeting on Glial Cells in Health and Disease. Porto, Portugal.

19. **Robles D**, **Vallejo C**, **Moles AB**, **Núñez S**, **Fucho R**, **Solsona E**, **Insausti N**, **Ribas V**, **Fernández-Checa JC**, **García-Ruiz C**. 2019. *Dietary cholesterol and overfeeding synergistically induce NASH and hepatocellular carcinoma in mice*. Jornadas CIBEREHD 2019. Barcelona, Spain.

20. Sala J, **García E**, Carreras P, **Rabaneda N**, **Solà C**, Vidal JM, Zhou C, Freiler A, Kozlova E, **Saura J**. 2019. *Mesoporous silica particles are phagocytosed by microglia and induce a mild proinflammatory reponse*. XIV European Meeting on Glial Cells in Health and Disease. Porto, Portugal.

21. **Sanfeliu C**, **Corpas R**, **Solana E**, De la Rosa A, Sarroca S, Griñán-Ferré C, Oriol M, Corbella E, Rodríguez-Farré E, Vina J, Pallàs M, Bartrés-Faz D, Gómez-Cabrera MC. 2019. *Long-term sport practice induces brain resilience through SIRT1-SIRT3 axis in male veteran rugby players*. FENS Regional Meeting 2019. Belgrade, Serbia.

22. **Torres S**, **Núñez S**, **Insausti N**, **Solsona E**, **Ribas V**, **García-Ruiz C**, **Fernández-Checa JC**. 2019. *FRI-098-Targeting cholesterol with atorvastatin protects against valproic acid-induced sensitization to acetaminophen hepatotoxicity*. 54th Annual meeting of the European Association for the Study of the Liver (EASL). Vienna, Austria.

23. **Torres S**, **Solsona E**, **Núñez S**, **Insausti N**, **García-Ruiz C**, **Fernández-Checa JC**. 2019. *The Hepatic Phenotype ff Niemann-Pick Type C Disease Exhibits*

Stard1 Upregulation Indenpendently of Endoplasmic Reticulum Stress. XIII Jornadas Científicas CIBEREHD. Barcelona, Spain.

24. **Torres S**, **Solsona E**, **Núñez S**, **Insausti N**, **García-Ruiz C**, **Fernández-Checa JC**. 2019. *The Hepatic Phenotype ff Niemann-Pick Type C Disease Exhibits Stard1 Upregulation Indenpendently of Endoplasmic Reticulum Stress*. AASLD Annual Meeting 2019. Boston, USA.

25. **Trullas R** & **Podlesniy P**. 2019. *Accumulation of mitocondrial 7SDNA in idiopathic and LRKK2 associated Parkinson's disease*. 18th National Meeting of the Spanish Society for Neuroscience. Santiago de Compostela, Spain.

SEMINARS

1. *CIBERSAM Innovación Terapéurica* (*chairperson*). **Artigas F**. XXII Congreso Nacional de Psiquiatría. Bilbao, Spain. 26-28.09.2019

2. *Antisense oligonucleotides: Therapeutic opportunities in Parkinson's disease* (*invited conference*). **Bortolozzi A**. CINAC Hospital Universitario HM Puerta del Sur. Madrid, Spain. 19.11.2019

3. *Ventral cingulate cortex, astrocytes and major depressive disorder. Development of a preclinical model*. **Bortolozzi A**. Cicle de Seminaris IIB Sant Pau. Barcelona, Spain. 09.10.2019

4. *Mitochondrial Respiratory Chain Complexes: Role in Liver Disease*. **Fernández-Checa JC**. Mitochondrial Respiratory Chain Complexes: Role in Liver Diseases (Keck School of Medicine Seminars - University of California). Los Angeles, USA. 28.08.2019

5. *Structural lipids in cell signaling and human disease*. **Fernández-Checa JC**. Structural lipids in cell signaling and human disease (In-House IDIBAPS seminaries). Barcelona, Spain. 21.03.2019

6. *Structural lipids in cell signaling and human disease*. **Fernández-Checa JC**. Seminario Grand Rounds. Mexico City, Mexico. 09.10.2019

7. *Tratamiento Experimental de la Enfermedad de Niemann Pick C Con Éster de GSH*. **Fernández-Checa JC**. IV Conferencia Científico-Familiar (Asociación Niemann Pick). Fuenlabrada, Spain. 08.06.2019

8. *Galectin-1 and pancreatic tumor microenvironment: opportunities for clinical translations*. **Navarro P**. IDIBELL's External Seminars Program. Barcelona, Spain. 11.03.2019

9. *Galectin-1: a novel actor orchestrating tumor-stroma crosstalk in pancreatic cancer*. **Navarro P**. Campus Clinic Cancer Seminar. Barcelona, Spain. 17.05.2019

10. *CD69 Plays a Beneficial Role in Ischemic Stroke by Dampening Endothelial Activation*. **Planas AM**. Session of the Hemotherapy and Hemostasis Service of the Hospital Clínic de Barcelona. Barcelona, Spain. 13.03.2019

11. *Role of inflammatory cells in ischemic stroke outcome*. **Planas AM**. Neuroscience day (Faculty of Medicine of University of Lund). Lund, Sweden. 09.05.2019

12. *Role of prefrontal 5-HT2A receptors in psychosis* (*invited conference*). **Artigas F**. Universidad de Santiago de Compostela. Santiago de Compostela, Spain. 25.03.2019

SCIENTIFIC COMMITTEES

1. 1st Iberian Meeting in Separation Sciences & Mass Spectrometry. XIX Reunión Científica de la Sociedad Española de Cromatografía y Técnicas Afines (SECyTA 2019), IX Conferencia de la Seciedad Española de Espectrometría de Masas (SEEM) and VI Conference of the Mass Spectrometry Group of the Portuguese Society of Chemistry. **Carrascal M**. Santiago de Compostela, Spain. 8-11.10.2019

2. I2MC Group Leader Selection Inserm Tolouse. **Llorente V**. Toulouse, France. 01.03.2020

3. Peer-review of a research project for the Medical Research Council UK. Determining the role of coagulation proteases in the development of renal fibrosis. **Moles AB**. Swindon/London, United Kingdom. 12.12.2019

4. Peer-review of an article for Histology and Histopathology. Cathepsin-B dependent Autophagy Ameliorates Steatoheaptitis in Chronic Exercise Rats. **Moles AB**. Spain. 19.07.2019

5. Peer-review of an article for Kidney Research UK. Evaluation of nitrated-CXCL8 to monitor ischaemia reperfusion injury in kidney transplantation. **Moles AB**. Peterborough, United Kingdom. 14.11.2019

6. Peer-review of an article for Oxidative Medicine and Cellular Longevity. The Role of Serotonin in Concanavalin A-Induced Liver Injury in Mice. **Moles AB**. United Kingdom. 14.10.2019

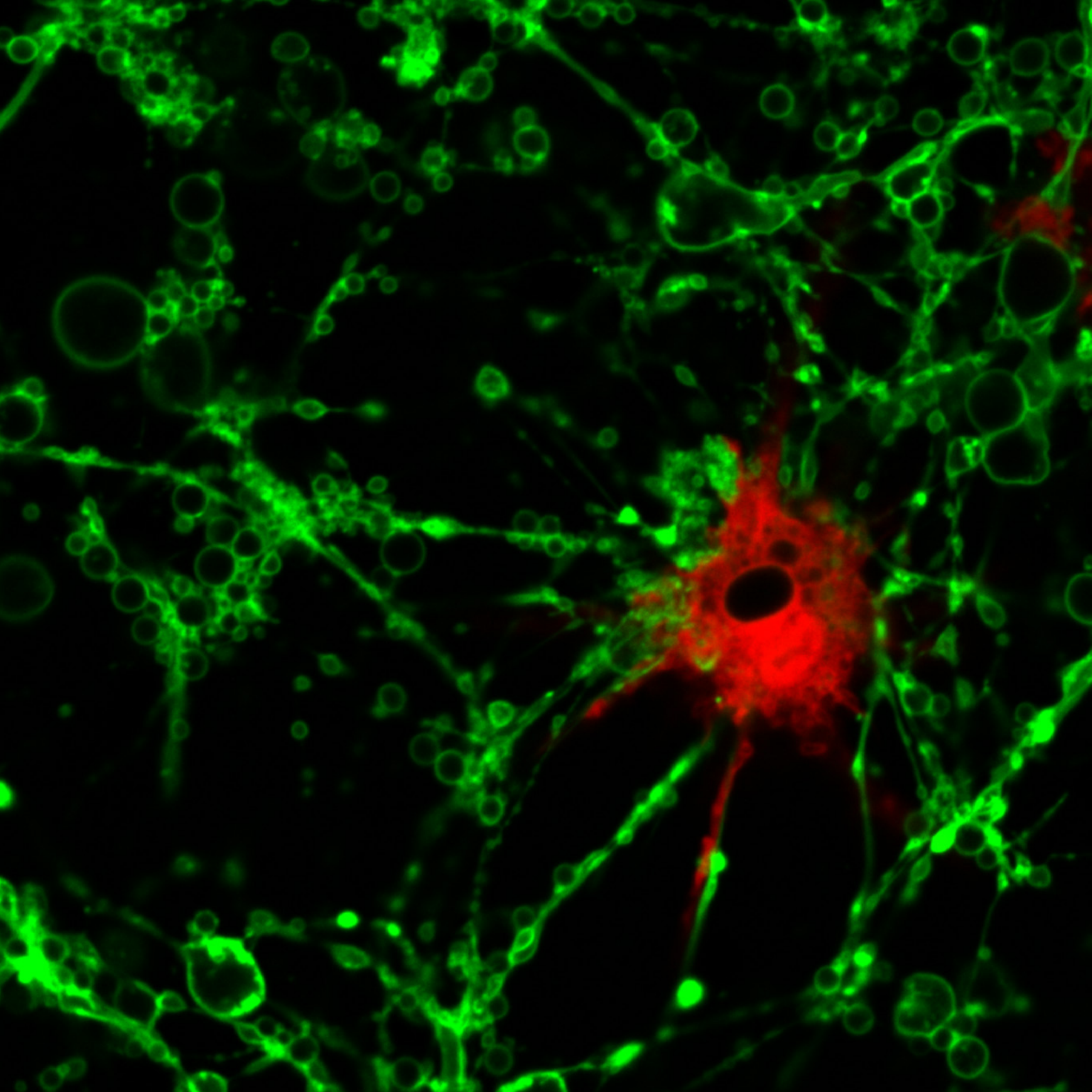
7. Peer-review of an article for the International Journal of Nephrology. The Role of Cathepsin B in Peritoneal Fibrosis due to Peritoneal Dialysis. **Moles AB**. Egypt. 27.05.2019

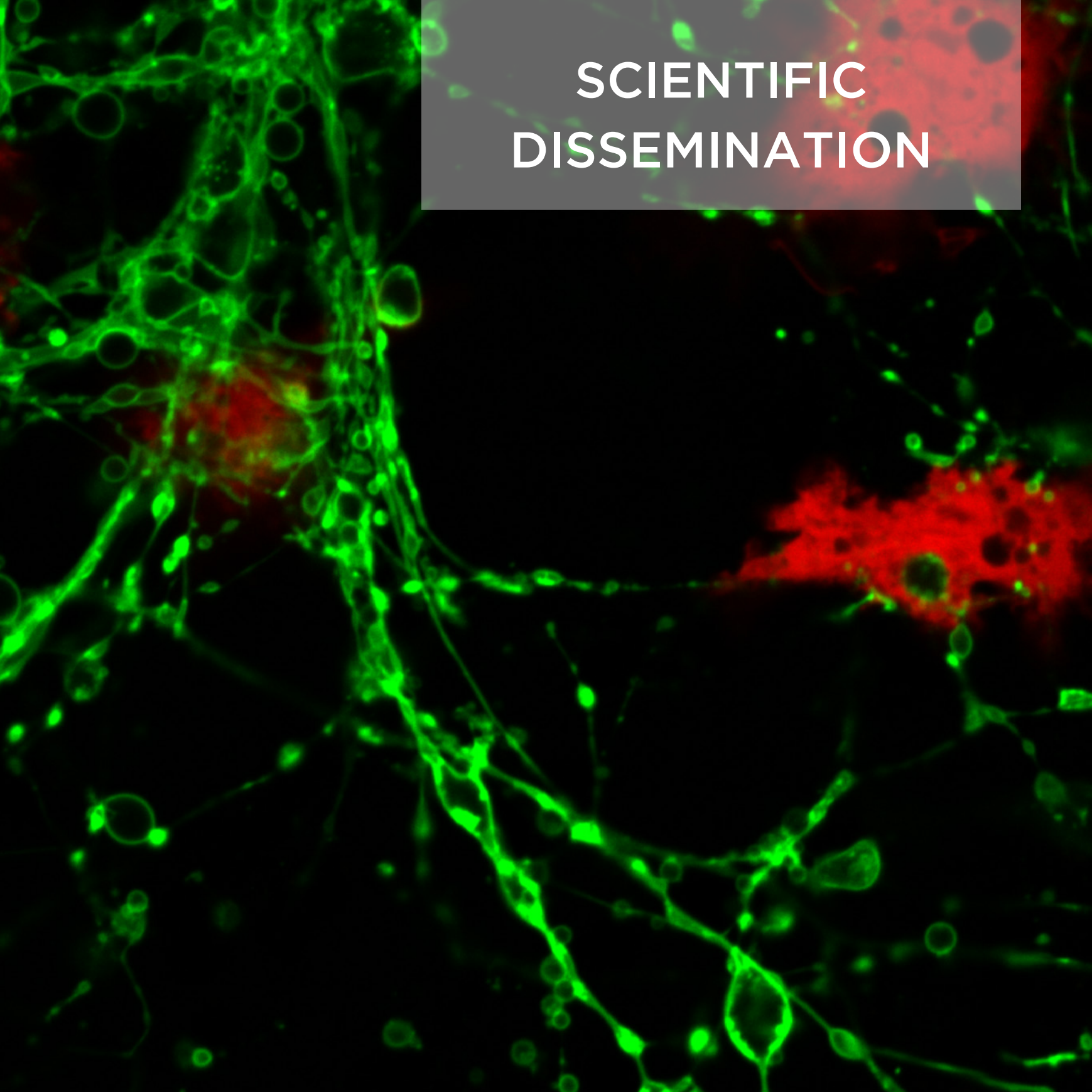
8. Presidente del Tribunal Nº 17 del proceso selectivo para cubrir plazas en la Escala de Científicos Titulares. **Artigas F**. Barcelona, Spain. 29.03.2019

9. Subarea of Nervous System Diseases from the area of Biomedicine of the of the Ministerio de Ciencia e Innovación. **Bortolozzi A**. Madrid, Spain. 6-8.02.2019

10. XVI Reunión de la Asociación Española de Pancreatología. **Navarro P**. Bilbao, Spain. 19-21.09.2019

11. XXVII Congress of the International Society on Thrombosis and Haemostasis. **Garcia de Frutos P**. Melbourne, Australia. 01.03.2020





SCIENTIFIC DISSEMINATION

ACTIVITITES FOR SCHOOLS

1. *Arteriosclerosis: Cholesterol, the silent killer*. **Martínez J**. Science Week 2019. IIBB-CSIC Campus UB. Barcelona, Spain. 14.11.2019

2. *Changing the expression of de brain genes with CRISPR and RNAi*. **Bortolozzi A**. World Brain Week 2019. Institut Municipal d'Educació de Barcelona. Barcelona, Spain. 11-15.03.2019

3. *How are brain diseases studied? Inside the brain*. **Artigas F**. World Brain Week 2019. Institut Municipal d'Educació de Barcelona. Barcelona, Spain. 11-15.03.2019

4. *Liver regeneration: myth or reality*. **Moles AB**. Science Week 2019. IIBB-CSIC Campus Clínic-UB. Barcelona, Spain. 13.11.2019

5. *Mice depression studies*. **Tarrés M**. World Brain Week 2019. Institut Municipal d'Educació de Barcelona. Barcelona, Spain. 11-15.03.2019

6. *Molecular therapy. Can we silence the brain genes expression?* **Bortolozzi A**. Science Week 2019. IIBB-CSIC Campus Clínic-UB. Barcelona, Spain. 14.11.2019

7. *Neuroscience and critical thinking: Myths and Reality*. **Pavía R**. World Brain Week 2019. Institut Municipal d'Educació de Barcelona. Barcelona, Spain. 11-15.03.2019

8. *Organization of the event*. **Mengod G** & **Cortés R**. Science Week 2019. IIBB-CSIC Campus Clínic-UB. Barcelona, Spain. 11-14.11.2019

9. *Science, credulity and charlatans*. **Closa D**. Science Week 2019. IIBB-CSIC Campus Clínic-UB. Barcelona, Spain. 11.11.2019

10. *The human brain*. **Artigas F**. World Brain Week 2019. Institut Municipal d'Educació de Barcelona. Barcelona, Spain. 11-15.03.2019

11. *The human brain*. **Vilaró T**. Science Week 2019. IIBB-CSIC Campus Clínic-UB. Barcelona, Spain. 13.11.2019

12. *The human brain*. **Vilaró T**. Stucom Centre d'Estudis. Barcelona, Spain. 27.11.2019

13. *Visits to the IIBB facilities* (*laboratories*) *for high school students. Observation of experimental techniques*. **Tarrés M**, **Pavía R**, **Miquel L**, **Solsona E**, **Petegnief V**, **Ochoa de Amezaga A**, **Bustamante E**, **Mengod G**, **Cortés R**. Science Week 2019. IIBB-CSIC Campus Clínic-UB. Barcelona, Spain. 13-14.11.2019

GENERAL AUDIENCE ACTIVITIES

1. *Hopeful advances in Alzheimer's disease*. **Sanfeliu C**. Lectures for the World Alzheimer's Day 2019. Molins de Rei, Spain. 26.09.2019

2. *Presentation of the book "100 secrets dels oceans"*. Ciència Editada. Garcés E, **Closa D**, Calvo L. Barcelona, Spain. 02.05.2019

3. **Presentation of the book "Antropocè; la fi d'un món"**. Sala de Convencions del Museu Cerdà de Puigcerdà. **Closa D**. Puigcerdà, Spain. 14.08.2019

4. *Presentation of the book "Antropocè; la fi d'un món"*. Biblioteca del Campus Universitari de Manresa (BCUM). **Closa D**. Manresa, Spain. 08.11.2019

MEDIA

01.02.2019 ElMedicoInteractivo.com. Press Article - 11 investigadoras para visibilizar el papel de la mujer en la Ciencia. **Bortolozzi A**.

05.02.2019 Infosalus.com. Press Article - Científicos españoles abren la puerta a nuevas dianas terapéuticas contra la depresión. **Bortolozzi A** & **Artigas F**.

06.02.2019 Infosalus.com. Press Article - El CIBER destaca el papel y el trabajo de 11 de sus investigadoras para visibilizar a la mujer en la ciencia. **Bortolozzi A**.

25.02.2019 Clinicbarcelona.org (IDIBAPS). Press Article - Desarrollan un modelo animal de depresión basado en alterar la comunicación entre neuronas y astrocitos. **Artigas F**, **Bortolozzi A**, **Fullana MN**.

01.03.2019 Europa Press. Press Article - Iago Aspas 'acelera' su recuperación en Barcelona. **Hotter G**.

01.03.2019 La Voz de Galicia. Press Article - Iago Aspas, por el buen camino. **Hotter G**.

02.03.2019 Faro de Vigo. Press Article - Las pruebas médicas confirman la buena evolución de la lesión de Aspas. **Hotter G**.

22.03.2019 Radio Molins de Rei. Award Ceremony – Premi Innovació. **Sanfeliu C**.

29.03.2019 ElPais.com. Written Interview - Ketamina: anestesia, droga y esperanza contra la depresión. **Artigas F**.

07.04.2019 ElPais.com. Written Interview - El sueño de una pastilla para ser feliz. **Artigas F**.

09.04.2019 TV Sant Cugat. TV Interview - Beneficios del ejercicio físico contra el envejecimiento cerebral. Programa en directo en el campo de deportes del club de rugbi de Sant Cugat. **Sanfeliu C**.

05.2019 Spanish National Research Council (CSIC). Press release - Hallan una posible nueva diana para el tratamiento de la toxicidad provocada por paracetamol. **Torres S**, **García-Ruiz C**, **Fernández-Checa JC**.

14.05.2019 imagenradio.com.mx. Press Article - Descubren proteína para tratamiento de toxicidad por paracetamol. **Torres S**, **García-Ruiz C**, **Fernández-Checa JC**.

14.05.2019 pulsoslp.com.mx. Press Article - Estudian proteína para tratamiento de toxicidad por paracetamol. **Torres S**, **García-Ruiz C**, **Fernández-Checa JC**.

14.05.2019 vertigopolitico.com. Press Article - Estudian proteína para tratar toxicidad por paracetamol. **Torres S**, **García-Ruiz C**, **Fernández-Checa JC**.

14.05.2019 excelsior.com.mx. Press Article - Descubren proteína para tratamiento de toxicidad por paracetamol. **Torres S**, **García-Ruiz C**, **Fernández-Checa JC**.

15.05.2019 Clinicbarcelona.org (IDIBAPS). Press Article - Hallan una posible nueva diana para el tratamiento de la toxicidad provocada por paracetamol. **Torres S**, **García-Ruiz C**, **Fernández-Checa JC**.

15.05.2019 biotech-spain.com. Press Article - Hallan una posible nueva diana para el tratamiento de la toxicidad provocada por paracetamol. **Torres S**, **García-Ruiz C**, **Fernández-Checa JC**.

15.05.2019 boletin.ciberisciii.es. Press Article - Describen un nuevo mediador mitocondrial en la hepatotoxicidad inducida por paracetamol. **Torres S**, **García-Ruiz C**, **Fernández-Checa JC**.

15.05.2019 Faro de Vigo. Press Article - Descubren una posible diana contra la toxicidad del paracetamol. **Torres S**, **García-Ruiz C**, **Fernández-Checa JC**.

17.05.2019 pacientesenbuenasmanos.com. Press Article - Nueva diana para el tratamiento de la toxicidad provocada por paracetamol. **Torres S**, **García-Ruiz C**, **Fernández-Checa JC**.

21.05.2019 jano.es. Press Article - Encuentran una posible diana para tratar la toxicidad por paracetamol. **Torres S**, **García-Ruiz C**, **Fernández-Checa JC**.

07.07.2019 Campusmilenio.mx. Press Article - José Carlos Fernández-Checa será nombrado doctor honoris causa por la UAM. **Fernández-Checa JC**.

16.07.2019 Clinicbarcelona.org (IDIBAPS). Press Article - José Carlos Fernández-Checa, Doctor Honoris Causa por la Universidad Autónoma Metropolitana de México. **Fernández-Checa JC**.

17.07.2019 La Vanguardia. Press Article - José Carlos Fernández-Checa, doctor honoris causa por Universidad de México. **Fernández-Checa JC**.

18.07.2019 ciberehd.org. Press Article - Fernández-Checa, doctor 'honoris causa' de la Universidad Autónoma Metropolitana de Mexico. **Fernández-Checa JC**.

19.08.2019 Correofarmaceutico.com. Press Article - Descubren un nuevo biomarcador para predecir el riesgo cardiovascular en personas sin síntomas. **Cortés-Llorente V** & **De Gonzalo D**.

19.08.2019 El Punt Avui. Press Article - Descubierto un nuevo biomarcador que predice con antelación el riesgo de desarrollar enfermedades cardiovasculares. **Cortés-Llorente V** & **De Gonzalo D**.

19.08.2019 ciberisciii.es. Press Article - sLRP1 predice con mucha antelación el riesgo de enfermedad cardiovascular en personas que no presentan ningún síntoma. **Cortés-Llorente V** & **De Gonzalo D**.

19.08.2019 CEESSBLOG.blogspot.com. Press Article - Descubren un nuevo biomarcador para predecir el riesgo cardiovascular en personas sin síntomas. **Cortés-Llorente V** & **De Gonzalo D**.

19.08.2019 Cadena Ser. Press Article - Una proteína alerta de ataques de corazón 10 años antes de que se produzcan. **Cortés-Llorente V** & **De Gonzalo D**.

20.08.2019 saludadiario.es. Press Article - Nuevo biomarcador para predecir la enfermedad cardiovascular con mucha antelación en pacientes sin ningún síntoma. **Cortés-Llorente V**, **De Gonzalo D** & Elosua R.

20.08.2019 meneame.net. Press Article - Detectan una proteína que alerta de ataques de corazón 10 años antes de que se produzcan. **Cortés-Llorente V** & **De Gonzalo D**.

20.08.2019 el Periódico. Press Article - Nou mètode per predir malalties cardiovasculars. **Cortés-Llorente V**, **De Gonzalo D** & Marrugar J.

20.08.2019 El Punt Avui. Press Article - Un nou biomarcador prediu malalties cardiovasculars. **Cortés-Llorente V**, **De Gonzalo D** & Marrugar J.

20.08.2019 Diari de Girona. Press Article - Identifiquen un nou biomarcador per predirel risc cardiovascular. **Cortés-Llorente V**, **De Gonzalo D**, Elosua R & Marrugar J.

20.08.2019 Spanish National Research Council (CSIC). Press release - Descubierto un biomarcador capaz de predecir el riesgo de desarrollar infarto agudo de miocardio. **Cortés-Llorente V** & **De Gonzalo D**.

21.08.2019 La Sexta. Press Article - Científicos españoles descubren una proteína que predice infartos diez años de que se produzcan. **Cortés-Llorente V** & **De Gonzalo D**.

30.08.2019 dicat.csic.es. Descubierto un biomarcador capaz de predecir el riesgo de desarrollar infarto agudo de miocardio. **Cortés-Llorente V** & **De Gonzalo D**.

01.09.2019 Residència d'Investigadors. XX Anniversary booklet - Retos Globales: Perspectivas desde la Ciencia (Neurociencia). **Artigas F**.

26.09.2019 Radio Molins de Rei. Radio Interview (podcast available) - El día del Alzheimer y las investigaciones de la enfermedad. **Sanfeliu C**.

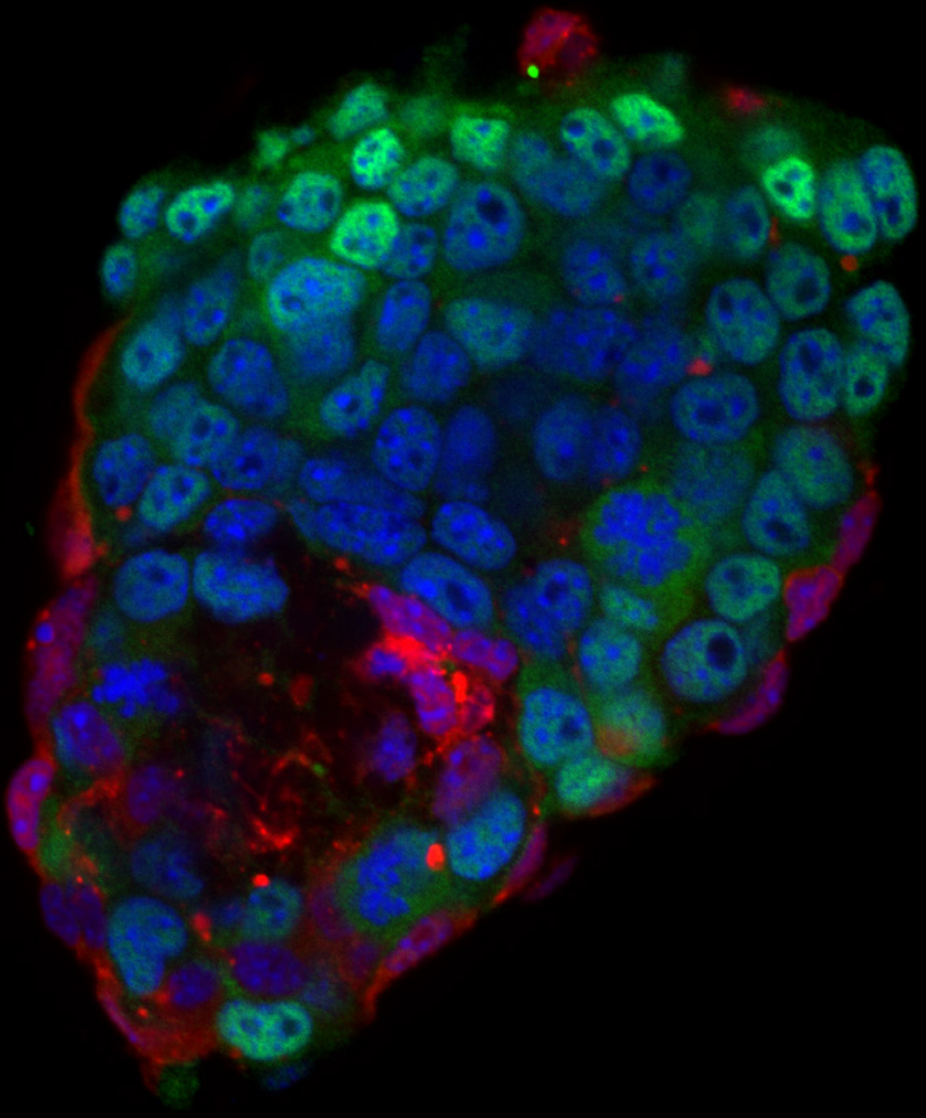
03.10.2019 CINP Daily News. Written interview - Breakthroughs in mood disorders: how can we improve the action of standard antidepressants? **Artigas F**.

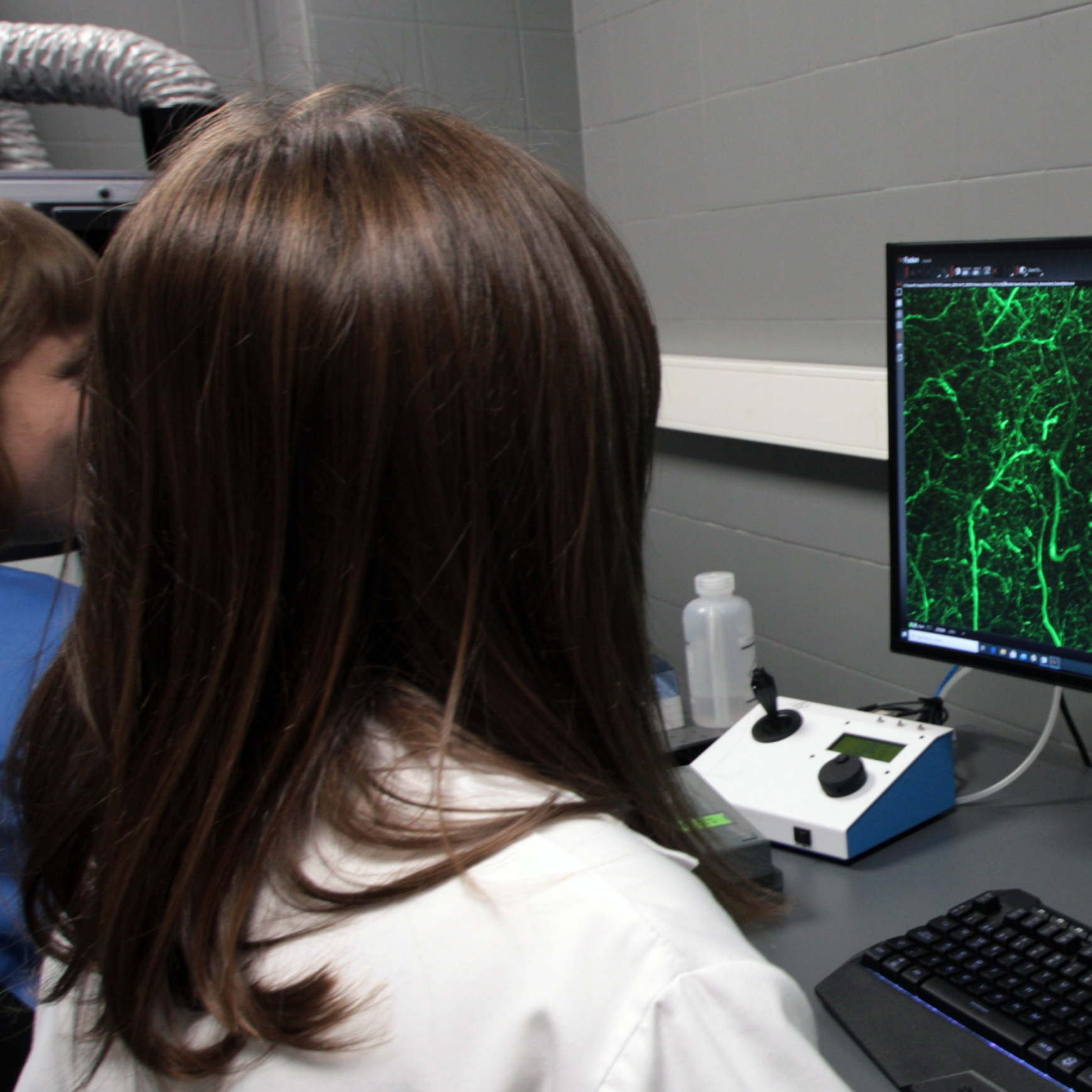
14.10.2019 mugsnoticias.com.mx. Press Article - Obesidad y sobrepeso inciden en la esteatohepatitis: Fernández-Checa. **Fernández-Checa JC**.

18.12.2019 Clinicbarcelona.org (IDIBAPS). Oral Interview - Talento femenino. Las científicas hablan: Analia Bortolozzi, investigadora del grupo del IIBB-CSIC-IDIBAPS "Neurofarmacología de sistemas". **Bortolozzi A**.

19.08.2020 COPE. Press Article & Radio Interview (podcast available) - Descubren un nuevo biomarcador que predice con antelación el riesgo de enfermedad cardiovascular. **Cortés-Llorente V** & **De Gonzalo D**.

21.08.2020 social.cat. Press Article - Investigadors de Sant Pau i de l'Hospital del Mar descobreixen com predir infarts de cor amb anys d'antelació. **Cortés-Llorente V** & **De Gonzalo D**.





EDUCATION

DOCTORAL THESIS (PhD)

1. **Alarcon Diana**. *Proteína alfa-sinucleína y modulación de los sistemas monoaminérgicos. Desde la función fisiológica a diana terapéutica utilizando ácidos nucleicos de interferencia*. Universitat de Barcelona. PhD in Biomedicine. Director: Director: **Francesc Artigas** & **Analia Bortolozzi**.

2. **De Gregorio Estefanía**. *Participación de las Catepsinas B y S en la respuesta inflamatoria hepática*. Universitat de Barcelona (UB). PhD in Biomedicine. Director: **Albert Morales** & **Montserrat Marí**.

3. **Fullana M Neus**. *Post-Transcriptional Modulation of Glial Glutamate Transporters in Mouse Prefontal Cortex. Involvement of Glutamatergic System in Depression*. Universitat de Barcelona (UB). PhD in Biomedicine. Director: **Francesc Artigas** & **Analia Bortolozzi**.

4. **Pedragosa Jordi**. *Els Macròfags Perivascualrs i la Infiltració Leucocitaria en la Isquèmia Cerebral*. Universitat de Barcelona (UB). PhD in Biomedicine. Director: **Anna Maria Planas**.

5. **Rabaneda Neus**. *Brain immune response as therapeutic target in the treatment of parkinson's disease*. Universitat de Barcelona (UB). PhD in Biomedicine. Director: **Carme Solà**.

6. **Salas Angélica**. *Estudio de la lesión por reperfusión en la isquèmia cerebral experimental y su tratamiento*. Universitat de Barcelona (UB). PhD in Biomedicine. Director: **Anna Maria Planas** & **Francesc Antoni Miró**.

7. **Tarrés Mireia**. *Neurobiological mechanisms involved in the antidepressant and psychotomimetic effects of NMDA receptor antagonists: role of the GluN2C subunit*. Universitat de Barcelona (UB). PhD in Biomedicine. Director: **Francesc Artigas** & **Anna Castañé**.

8. **Vinaixa Judith**. *Role of Galectin-1 in Pancreatic Cancer Stroma, a small but mischievous protein with a novel nuclear function*. Universitat Pompeu i Fabra. PhD in Biomedicine. Director: **Pilar Navarro**.

FINAL RESEARCH PROJECT MASTER'S DEGREE

1. **Aguirre S**. *Monomeric C Reactive Protein and soluble Epoxide Hydrolase as novel targets for Alzheimer's disease therapy*. Universitat de Barcelona (UB). MSc in Neuroscience. Director: **Coral Sanfeliu** & **Rubén Corpas**.

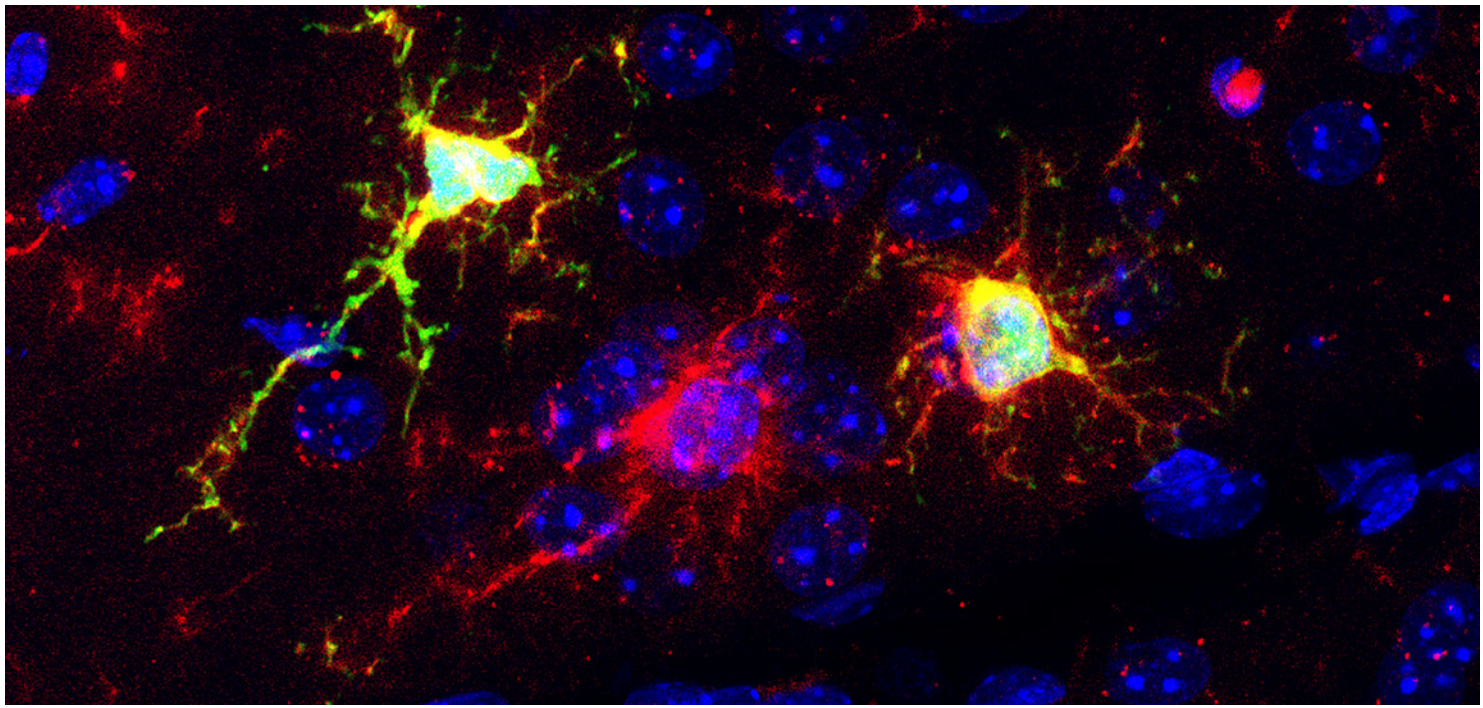
2. **Andrés N**. *Analysis of the CD1d deficiency in fibrosis and liver inflammation in experimental non-alcoholic steatohepatitis*. Universitat de Barcelona (UB). MSc in Molecular Biotechnology. Director: **Montserrat Marí**.

3. **Clotet N**. *In vitro modulation of soluble Epoxide Hydrolase: a potential target to reduce neuroinflammation in neurodegenerative diseases*. Universitat Autònoma de Barcelona (UAB). MSc in Neuroscience. Director: **Coral Sanfeliu** & **Rubén Corpas**.

4. **López A**. *Estudi del paper de la polimerasa poli(ADP-ribosa)2 (PARP-2) en el model Ela-myc mitjançant una caracterització immunohistoquímica: una aproximació inicial a nivel pre-clínic*. Universitat de Barcelona. MSc in Clinical Research. Director: **Pilar Navarro**.

5. **Mollá R**. *Cathepsin D cell-specific role during liver damage and fibrosis*. Facultat de Medicina, Universitat de Barcelona (UB). MSc in Biomedicine. Director: **Ana Belén Moles**.

6. **Pablo V**. *Indentification of somatic variants in at-risk healthy mucosa from patients with colorectal neoplasia*. Universitat de Barcelona. Director: **Ramon Trullas** & **Petar Podlesniy**.



FINAL RESEARCH PROJECT BACHELOR'S DEGREE

1. **Fiol P**. *Regulación de la transcripción de ADN mitocondrial*. Universitat Autònoma de Barcelona. BSc in Genetics. Director: **Ramon Trullas** & **Petar Podlesniy**.

2. **Krzyzanowska MP**. *Role of Transcription Elongation Factor on the mitochondrial transcription and replication switch*. University of Wroclaw. **Ramon Trullas** & **Petar Podlesniy**.

3. **Subías M**. *Nuevas terapias contra el hepatocarcinoma celular*. Facultat de Biologia, Universitat de Barcelona (UB). BSc in Biotechnology. Director: **Albert Morales**.

OTHER RESEARCH PROJECTS

1. **Orta C**. *Validación de las vías del retículo endoplasmático como una nueva diana para restaurar la homeostasis de la proteína alfa-sinucleína*. Colegio Lestonnac. Trabajo de Investigación 1º Grado. Director: **Analia Bortolozzi**.

TRAINEESHIPS MENTORING

1. Student: Andrés Sánchez. MSc in Translational medicine. Final degree research project and internship. Universitat de Barcelona. Mentor: García-Ruiz C. 500 hours.

2. Student: loana Solovastru. BSc in Medicine. Practical training in techniques for the study of cognitive loss in mice. Erasmus+ Faculty of Medicine at UMFST Targu Mures. Mentor: Sanfeliu C, García E, Corpas R. 230 hours.

3. Student: Lorena Rodríguez. Final degree internship. Advanced Technician in Vocational Training in Clinical and Biomedical Laboratories. Escola Bonanova (Consorci Mar Parc de Salut de Barcelona). Mentor: Navarro P. 267 hours.

4. Student: Rubén Mollá. MSc in Translational medicine. Final degree research project and internship. Universitat de Barcelona. Mentor: Moles AB. 700 hours.

UNIVERSITY TEACHING COLLABORATION

1. Subject: 9th Topic Chemical neurotransmission. MSc in Experimental and Clinical Neuroscience. Universidad de Murcia. 01.05.2019. **Suñol C**, **Bortolozzi A**, **Artigas F**. 6 hours.

2. Subject: Aging and senescence. MSc in Biomedicine. Universitat de Barcelona. 30.01.2019. **Sanfeliu C**. 1 hour.

3. Subject: Animal models and transgenic animal breed. MSc in Neuroscience. Universitat de Barcelona. 14-15.01.2019. **Planas AM** & **Sanfeliu C**. 2 hours.

4. Subject: Biological bases of psychiatric pathology. MSc in Mental Health Research. Universidad de Cantabria & other. **Castañé A**, **Artigas F**, **Bortolozzi A**.

5. Subject: Communicate neurosciences. MSc in Basic and Applied Neurosciences. Universitat de València. 25.03.2019. **Bortolozzi A**. 2 hours.

6. Subject: General Aspects of Neurobiology. MSc in Mental Health Research. Universidad de Cantabria & other. **Castañé A**, **Artigas F**, **Bortolozzi A**.

7. Subject: Genitourinary cancer. MSc in Clinical Research. Universitat Pompeu i Fabra. 07.02.2019. **Navarro P**. 2 hours.

8. Subject: Ischemia and cerebrovascular diseases. MSc in Neuroscience. Universitat de Barcelona. 04.02.2019. **Ochoa A**, **Gallizioli M**, **Planas AM**, **Petegnief V**, **Pedragosa J**, **Justicia C**. 14 hours.

9. Subject: Metabolic Liver Diseases: Alcoholic and Nonalcoholic Liver Disease and Others. MSc in Clinical Research. Universitat de Barcelona. 19.03.2019. **Fernández-Checa JC**. 60 hours.

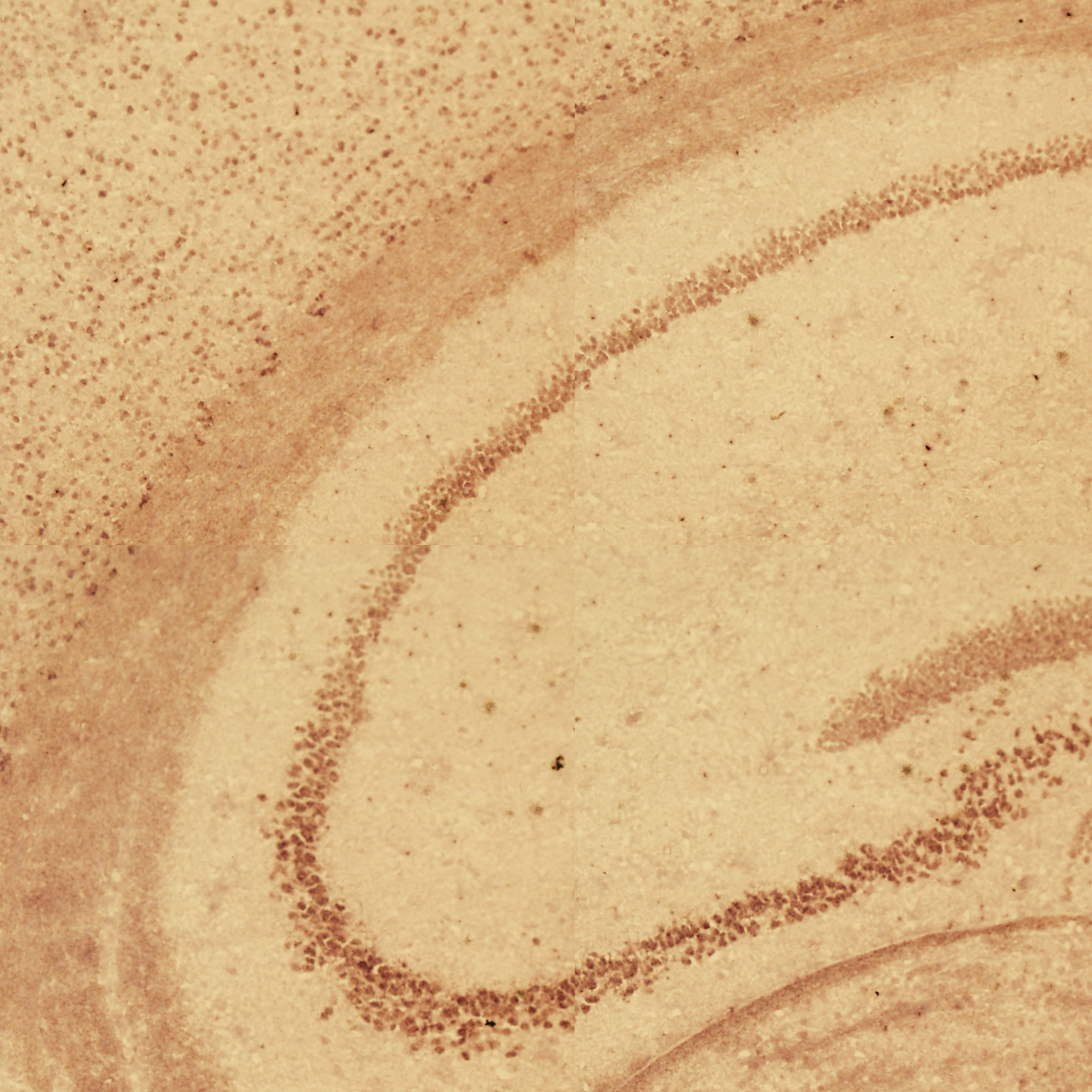
10. Subject: Methods and models in cell biology (module Experimental Models, Animal Handling and Genetic Engineering). MSc Translational medicine. Universitat de Barcelona. 29.10.2019. **Moles AB**. 2 hours.

11. Subject: Science career development. MSc in Mental Health Research. Universidad de Cantabria & other. 23.01.2019. **Artigas F**. 1 hour.

12. Subject: Translational medicine. BSc in Medicine. Universitat de Barcelona. 17.05.2019. **Planas AM**. 1 hour.

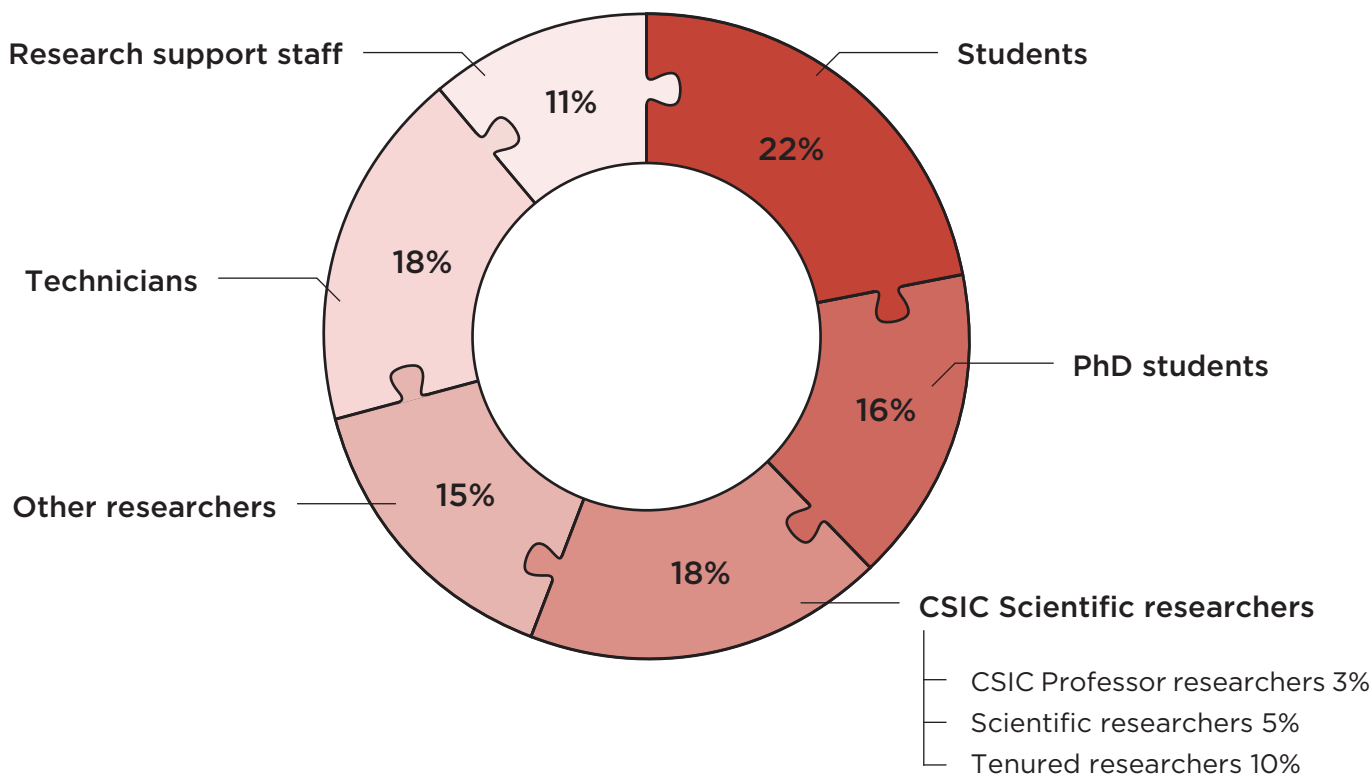
NON-UNIVERSITY TEACHING COLLABORATION

1. Topic: Role of brain circuits in the pathophysiology and treatment of mental disorders. Training Course in Psychopharmacology for Psychiatrists. Lundbeck España S.A. 17.01.2019. **Artigas F**. 7 hours.

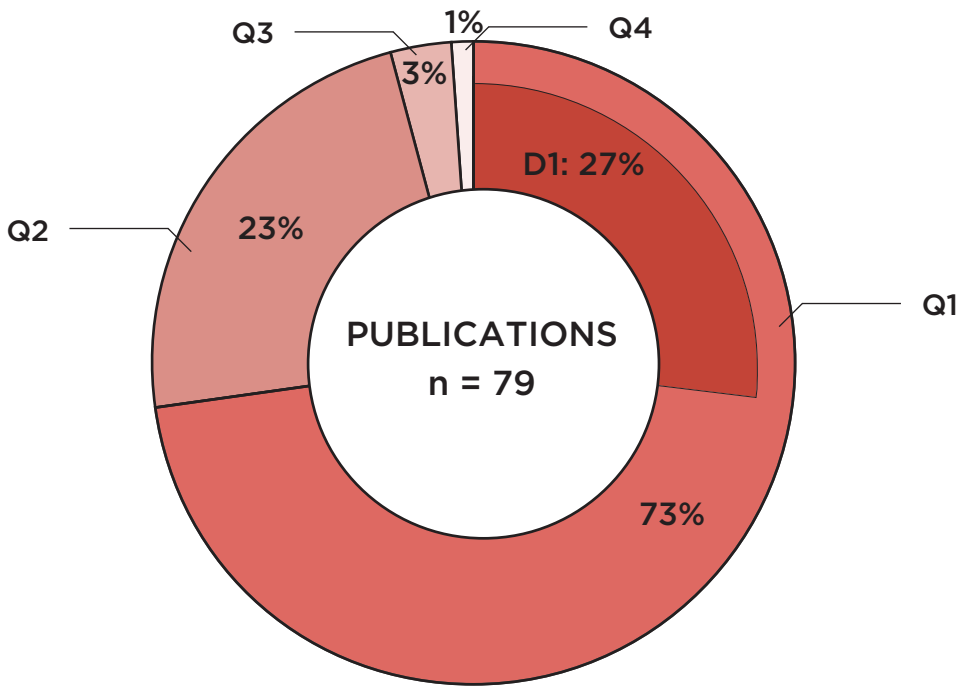


IIBB IN FIGURES

STAFF


Research support staff
11%
Students
22%
Technicians
18%
PhD students
16%
Other researchers
15%
18%
CSIC Scientific researchers
CSIC Professor researchers 3%
Scientific researchers 5%
Tenured researchers 10%

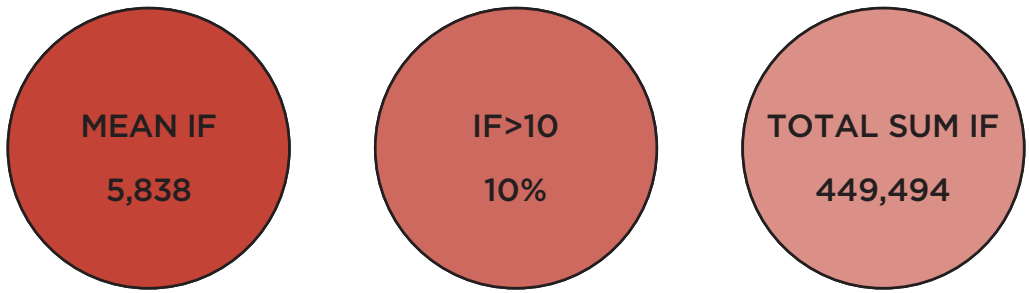
PUBLICATIONS



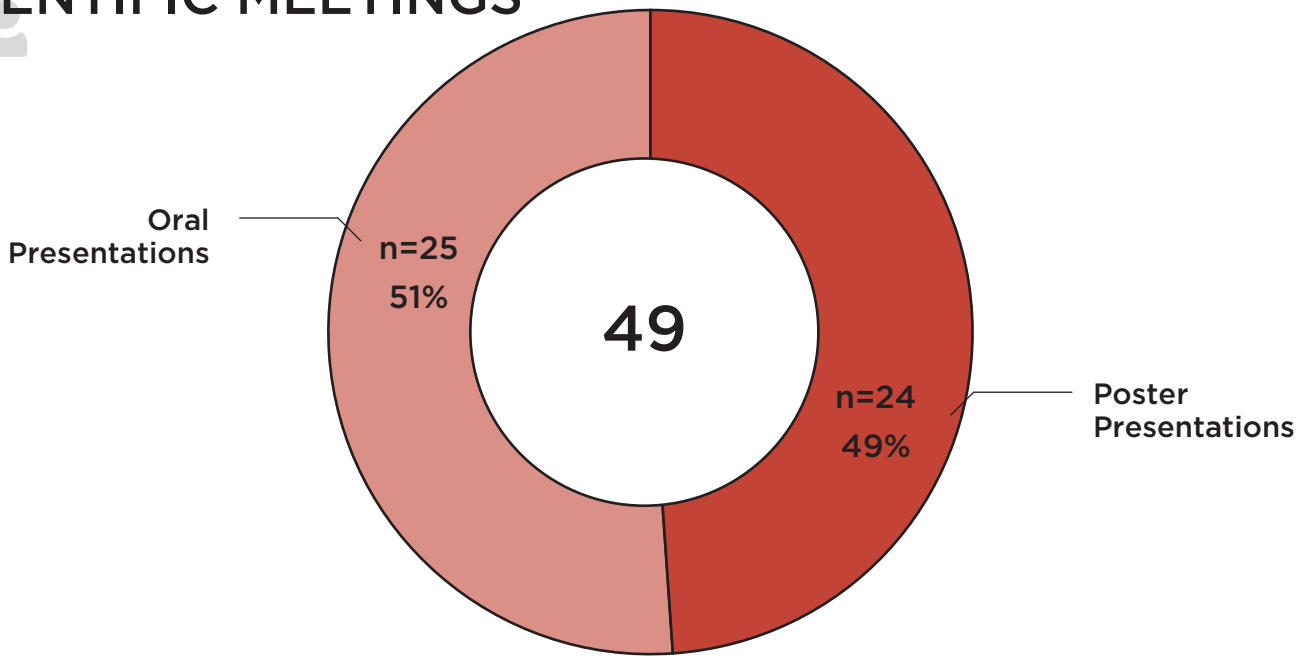
% Q1-Q4: % of papers published in journals ranked in quartiles 1 to 4 of their category, as ordered by the Journal Citation Reports 2019.

% D1: % of papers published in journals ranked in the first decile of their category, as ordered by the Journal Citation Reports 2019.

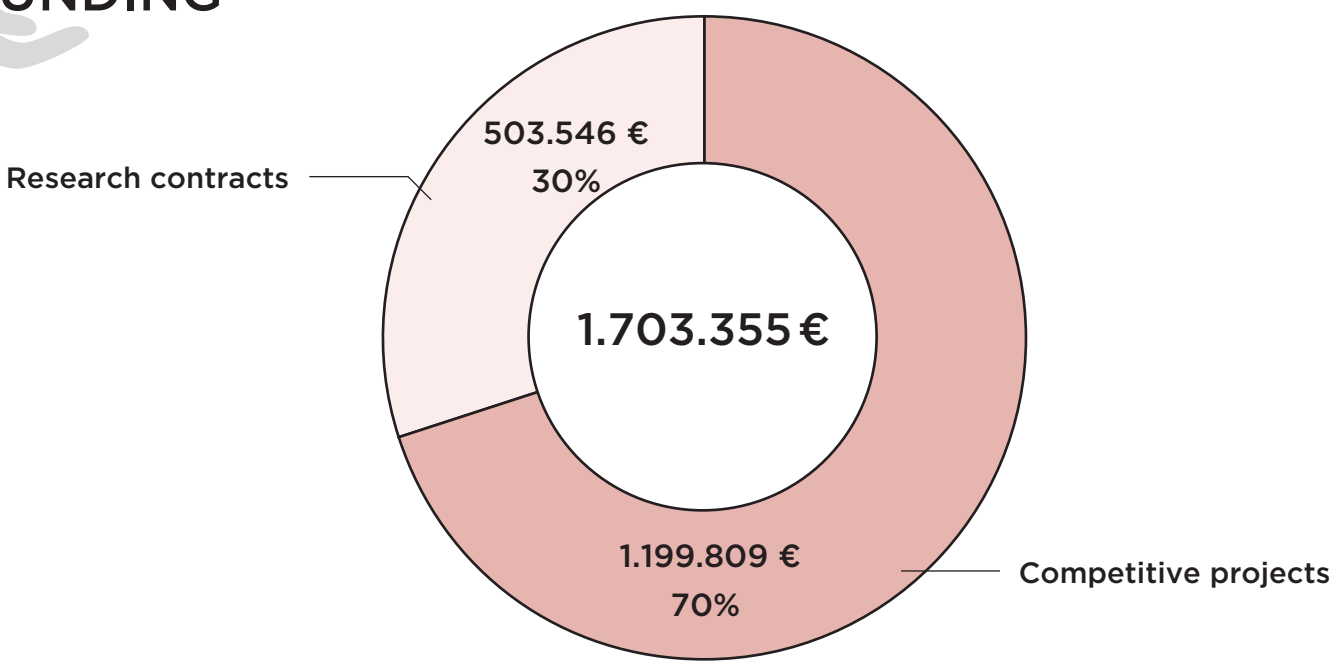
Impact factor



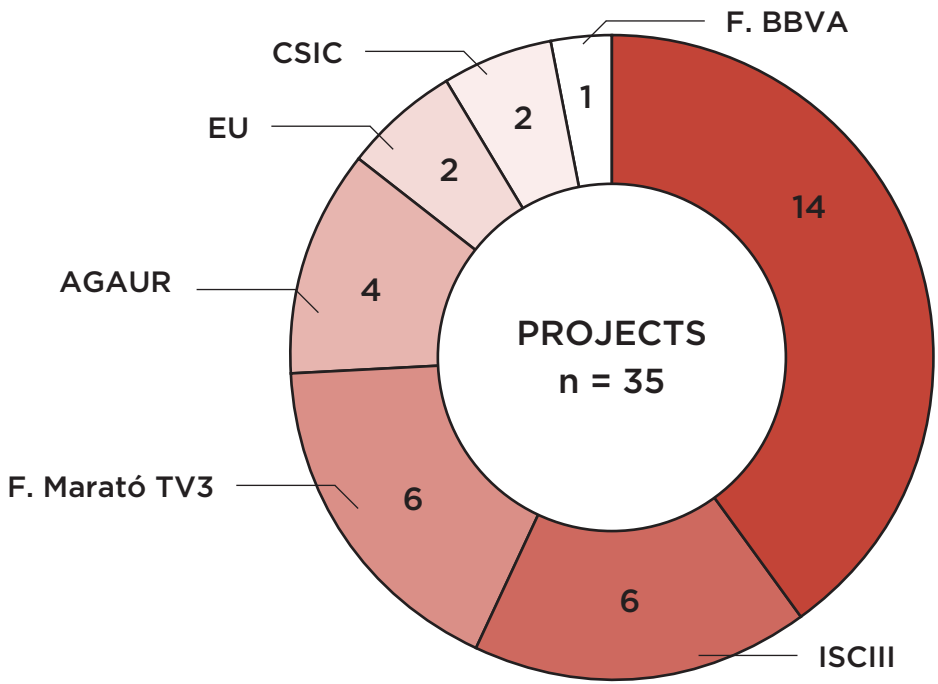
SCIENTIFIC MEETINGS



FUNDING



Active competitive projects (1.199.809 €)



New competitive projects (1.016.905 €)